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CHARLES NEILSON, a well-known former railroad manager (also at one time head of the railway bureau of the Postoffice department at Washington), in a letter printed in this issue, suggests that James McCrea ought to be drafted into the public service, so that president, congressmen and all federal officers could have the benefit of his ability and experience. We are safe in saying that railway officers generally will second this nomination most heartily. Mr. Neilson does not go into details, but he seems to have in mind a sort of chief commissionership. Surely he would not think of burying such an all-around railroad expert, with his 48 years of experience, in a body like the Interstate Commerce Commission, with six other members, all of them compelled by circumstances to spend most of their time as freight-rate specialists. At first blush this proposition will be classed by many railroad men as the impracticable notion of an idealist. Government standards of ability are often

low, and Congress usually refuses to pay the sums necessary to get first class men when they are available. As for this last point, the compensation, it is true that, for the highest talent, the great railroads pay more than does the government; but a railroad president, in serving the whole people could be expected to be actuated by a true public spirit, as are the justices of the Supreme Court, and other functionaries, who serve for less than they could earn elsewhere. As to the government not aiming to get the best, that is far from universally true. The Hadley commission, selected by President Taft, and the Engineers' Arbitration Board, selected by Chief Justice White, Judge Knapp and Commissioner Neill, are shining examples of wise choices. The idealist is entitled not only to respectful attention but to serious consideration. To give a practical turn to Mr. Neilson's proposal, Mr. McCrea would be just the man to investigate train accidents. That is a subject concerning which a good deal of futile talk has been printed. It is hampered by much tedious detail, but when it is remembered that a single collision or derailment now and then destroys \$100,000 worth of property—to say nothing of death and distress—it will be recognized that the problem is not beneath the attention of the wisest head. The fundamental qualifications for a governmental officer in this matter are thorough knowledge of the field and absolute impartiality; and in Mr. McCrea we have these. Moreover, he knows the subject in every last detail, so that his task would not be an onerous one, and the fact that his health is not equal to the burdens of a great railroad presidency would not necessarily be a hindrance to accepting the government position.

IN the freight rate law approved by the voters of Oregon at the general election on November 5, which was commented on briefly in our issue of November 15, the initiative and referendum appear to have attained a *reductio ad absurdum* at a very early stage in their practical development. In addition to voting for the usual long list of public officers the people of that "progressive" state were called on to approve or reject by their ballots a series of thirty-seven measures referred to them by the legislative assembly, proposed by initiative petition, or on which a referendum had been ordered by petition. Together with the arguments for and against some of them they comprised a pamphlet of 256 pages of type of the size in which this editorial is printed. Slightly over two of the pages, with no argument for or against, were devoted to the freight rate bill referred to, which among various ambiguous provisions, prescribed a definite percentage relation between the ten classes of freight rates as well as between carload and less than carload rates on the basis of the carload weight. It is probably safe to say that in the whole document there was no subject dealt with about which the average voter knows less. More votes were cast for the bill than against it, however, and now, according to the Portland newspapers, both shippers and railways are trying to find out what it means. The state railway commission, which opposed the bill, has issued a statement to the railways calling their attention to its passage in order that they may "comply with its provisions at once." "To avoid misunderstanding," the commission adds, "the interpretation of statutes is a judicial function," and "requests for interpretation will be declined by the commission." In other words the roads and shippers must interpret the measure at their peril or appeal to the courts. It is said that the bill was drawn up for the purpose of benefiting certain jobbing centers by the reduction of carload rates in which they were interested, and that the people voted for it under the general impression that it would reduce rates. As a matter of fact, there was not a word in the 256 pages of the pamphlet to indicate to the voters anything as to the probable effect of the measure in making rates either higher or lower. There is nothing in the act to prevent the railways from making rates as high as they please, provided the percentage relations fixed are observed. The sole effect is to throw the whole system of freight rates into a condition of uncertainty and con-

fusion. It is reported that both railways and shippers are planning to attack the law in injunction proceedings. Were it not for the fact that it would take months to revise the rates in accordance with the provisions of the measure, probably the surest way to kill it would be to enforce it.

THE ARBITRATION BOARD'S REPORT.

THE report of the board which arbitrated the controversy between the eastern railways and their enginemen is the most important and remarkable document on the railway labor situation in the United States that has ever been prepared. The award made in this case will be received with more or less dissatisfaction by both the railway managers and the enginemen. The managers will be dissatisfied, because some advances in wages are granted and some changes in conditions of work are made which are equivalent to advances; and they had felt that there should be no increases in wages. The enginemen will be disappointed, because they gain much less than they asked for, and substantially less than they hoped for. But even in the minds of the parties directly concerned, and to a far greater extent in the mind of the public, the immediate result of the decision in this particular case will be entirely overshadowed in significance by the reasons assigned by the board for its decision; by its discussion of the railway problem; and especially by its comments on the railway labor situation and its recommendation, with the reasons therefor, that there be created wage commissions to deal with railway wage questions in the same way that the Interstate Commerce Commission deals with railway rate questions.

Mr. Morrissey, who represented the enginemen on the board dissents. Mr. Willard, who represented the railways, concurs, although he files a brief explanatory statement indicating that he differs on several points from the five members of the board who represented neither side and were the real arbitrators. Mr. Willard's course apparently was largely dictated by the circumstances under which the arbitration board was created. He and Mr. Morrissey, after repeated conferences, were unable to agree on the other five members of the board, and submitted to Chief Justice White of the United States Supreme Court, Presiding Judge Knapp of the Commerce Court, and Labor Commissioner Neill, a list of names from which they selected the five. Mr. Willard seemingly felt that having indicated that he believed that the men finally chosen were intelligent, able and impartial, it would be inconsistent for him to dissent from their findings. Having helped make the rules according to which the game was played, he apparently thought that it would seem unsportsmanlike to object to the result.

The fact that Mr. Morrissey dissented from the report may tend to make organized labor and its friends criticise it. But before any one criticises it, he should consider the conditions out of which it grew. As to the high character, ability, intelligence and public spirit of the five real arbitrators there can be no question. Oscar S. Straus is a great business man who is noted for his philanthropy, who has served the United States in various important positions, including that of Secretary of Commerce and Labor under President Roosevelt; and he was the Progressive candidate for governor of New York at the last election.

Charles H. Van Hise is president of the University of Wisconsin; is a social reformer of note; and it has been largely owing to him that Wisconsin has made its government one of the most radical in the Union. Frederick N. Judson is an eminent lawyer and a leading authority on the law of Interstate Commerce, and has come into national prominence on two occasions of significance. Some years ago employees of the Wabash Railroad struck. Federal Judge Elmer B. Adams issued an injunction which practically required them to return to work. They employed Mr. Judson as their attorney, and he secured the rescinding of the injunction. The second occasion on which he came into great prominence was when he and Judson Harmon

resigned as special attorneys for the United States government because President Roosevelt refused to follow their recommendation that the Santa Fe and certain of its officers be prosecuted for rebating. Albert Shaw is the editor of the *American Review of Reviews*, and always in his public utterances has been rather favorable to labor, and rather hostile to the railroads. Otto Eiditz is a building contractor in New York City, and has been a leader in the National Civic Federation, which is inclined toward labor in its sympathies rather more than toward capital.

What was naturally to be anticipated from such a board? The railway managers feared, with apparent reason, that it would be partial toward labor. The enginemen apparently felt much the same way. The members of the board have given most of their time for five months to investigation of the issues involved in the controversy before them and to study of the conditions of which this controversy was a symptom. It is notable as indicating the public spirit by which all of the five were actuated, that although it was understood when they were appointed that they would be paid for their services, after their work was done they refused any compensation. Past mediations and arbitrations in railway labor disputes, especially under the Erdman Act, have been settled according to what seemed to be the dictates of immediate expediency and not according to sound principles. In other words, the aim has been to get *some* settlement rather than a *just* settlement under which the rights of all parties interested, namely, the employees, the railways and the public, would be sustained. This board set out to settle the controversy before it, not according to the dictates of a short sighted expediency, but according to fundamental principles. When they prepared their report, the arbitrators knew more about the issues involved, and the facts bearing on them, and had a clearer conception of the rights of the railways and their employees and their duties to the public, than any other body of men. Obviously no man who is not in a position to be as unbiased and public spirited in his attitude and to know as much about the facts, the issues and the principles involved can be accepted as a trustworthy critic of their report. The board evidently tried to deal with its problem almost exclusively from the standpoint of the public welfare; and if its report is criticised, it will be well, before accepting the criticisms, to consider whether the critic and those he represents may not be seeking, perhaps unwittingly, to further their own interests at the expense of, rather than in accordance with, the interests of the public.

The report may be expected to become an important precedent for further arbitrations. The recommendations made, especially that for the creation of a wage commission, will cause much discussion. It will be well, therefore, to consider just what is recommended, and the reasons. The board decided that the eastern enginemen are entitled to some improvements in their working conditions and to minimum wages considerably higher than those now paid on most eastern roads, and substantially higher than are being paid on some of them. The question of a living wage was not involved; it was recognized by both sides that the enginemen already were receiving more than that. It was contended by the enginemen that the relative wages paid in the south and the west, and the increasing responsibility and hazard of their occupation, justified higher compensation for them. They asked for general standardization of their wages. The railways contended that their enginemen, all conditions considered, were highly paid as compared with other railway employees and other working men, and that the railways generally in the east could not afford to pay higher wages. They also contended that difference in both the physical and financial conditions of the railways should be considered and that all should not be required to pay the same wages.

The board decides that differences in physical conditions on different roads should be considered to some extent, but not differences in their financial condition. It also decides that the

eastern railways could afford to pay higher wages. But it bases its award chiefly on the wages paid to other classes of railway employees and to skilled workmen in non-railway trades. The advances in wages given are relatively small. In other words, the board decides that the enginemen's wages should be made reasonable *per se*; and it felt that a relatively small increase would make them so. It also clearly indicated that it felt that while the railways could afford to pay a little more they could not afford to pay much more without being given permission to transfer the added burden to the public in the form of higher freight and passenger rates. The conclusion to be drawn from this is obvious. It is that the board believes that generally speaking the wages of organized employees on railways are high enough.

In reaching this conclusion the board entered into an elaborate discussion of the relations between railways and their employees on the one hand, and the relations of the railways and the employees to the public on the other hand. It believes that railways should be allowed to earn enough to pay their employees fair wages and pay their security holders a fair return. But it thinks that the time will not return when the public or the regulating authorities will tolerate such financial operations as sometimes have taken place in the past. It believes that the railways should be allowed to earn not only a fair return, but something for surplus; but it believes that this surplus should be invested in the property and never capitalized by the issuance of stock dividends. It evidently believes that if this policy were adopted it would be possible for the railways to get more liberal treatment from the public in respect to both labor matters and rate matters. This point merits the earnest attention of railway officers. Many of them will perhaps deprecate the idea that they ought never to be permitted to capitalize surplus invested in the properties. Just the same, it seems pretty clear that the board's attitude is the correct one, and that, with extremely few exceptions, if any, the railways should profit from the investment of surplus by getting a larger percentage of return from the capital invested by their security holders rather than by capitalizing surplus and getting a smaller percentage of returns on the larger issue of securities.

Viewing the matter broadly, the most important part of the report is that entitled "General Considerations." Here the board discusses the general railway labor situation as illustrated by the case directly under consideration. It shows that the head of the Brotherhood of Locomotive Engineers had power to order a strike and that a strike would have stopped transportation in the most populous, wealthy and industrially active section of the country, thereby practically stopping all industrial operations. The board paints in glowing language the inconvenience, loss and suffering that this would have caused to the public. It decides that the power to cause the public such inconvenience, loss and suffering ought not to be possessed by any body of men, and that, therefore, the time has come for legislation to restrict the freedom of railway employees to strike. But if they are to be deprived of this freedom they must be given something in its place. The board, therefore, suggests the creation of national and state wage commissions, or labor commissions, "which should exercise functions regarding labor engaged at work in public utilities analogous to those now exercised in regard to capital by the public service commissions and boards in existence." Many railway managers believe that as the wages paid to labor largely determine the passenger and freight rates that they must charge, and that as the rates that they are permitted to charge largely determine what they can pay to labor, the settlement of wage and rate disputes should be delegated to the same bodies. The recommendation of the arbitration board, however, is along the line of the policy advocated by F. A. Delano in letters published in the *Railway Age Gazette* on April 7, 1911, and May 12, 1911. Mr. Delano, it will be remembered, suggested the creation of a permanent court of arbitration to settle railway labor controversies.

That the railway labor brotherhoods have secured a power

that is dangerous to the public welfare, and that for the protection of the public some such plan should be adopted as is suggested by the arbitration board, has been repeatedly urged in these columns in recent years. Mr. Morrissey strongly dissents from this recommendation in a very able minority report. We have the greatest respect for Mr. Morrissey's ability. We believe he is one of the fairest minded labor leaders in the United States. But the position he takes and the arguments he makes are strikingly analogous to those of railway managers in past years in reference to proposals for public regulation of their rates and service. They said that fair public regulation of rates was impracticable; that regulation would deprive the railways of one of their most important rights of property, and so on. Nevertheless, public regulation of railways is an accomplished fact. Mr. Morrissey points out that there has been great progress in the way of settling railway labor disputes without strikes. That is true, but there has been very little progress in settling railway labor disputes on their merits. They have been settled under the Erdman act on principles of expediency, and not on principles of enduring equity. They have been so settled as to avoid strikes, but not so as to secure to the railways, the employees and the public what they are entitled to. They should be settled, not merely in such a way as to prevent strikes, but in such a way as to secure justice to and promote the welfare of all concerned. They cannot be thus settled without a radical change in the method of settlement. When disputes now arise between railways and shippers the public does not allow them to be settled according to the law of the strongest, but requires that they be settled, as nearly as with human means they can be settled, according to principles of right; and it has established certain boards to apply and enforce those principles. When disputes arise between individuals regarding property rights, the law does not, and never has in civilized countries, permitted them to be settled at fisticuffs by the law of the strongest, but has required that they be settled by judicial process. No one claims that the decisions of courts are always right, but no one questions that the results gained by litigation are better than the results that would be gained by personal combat. And now the arbitration board says that when controversies arise between the railways and their employees, they should not be allowed to be settled by trial of strength, but that they should be settled in the same way that controversies between individuals regarding property rights are settled, and in the same way that controversies between railways and their patrons regarding rates are settled. If, as Mr. Morrissey's dissenting opinion indicates, railway labor is going to oppose the plan recommended by the arbitration board, the public probably will not be wrong if it concludes that the opposition is due to the fact that railway labor now feels that it is stronger than the railway management, and that, therefore, it has more to gain at the expense of the railways and the public by being left free to exercise its superior strength, regardless of the cost to others, than by being required to submit the determination of its rights to public bodies especially created and equipped to determine those rights.

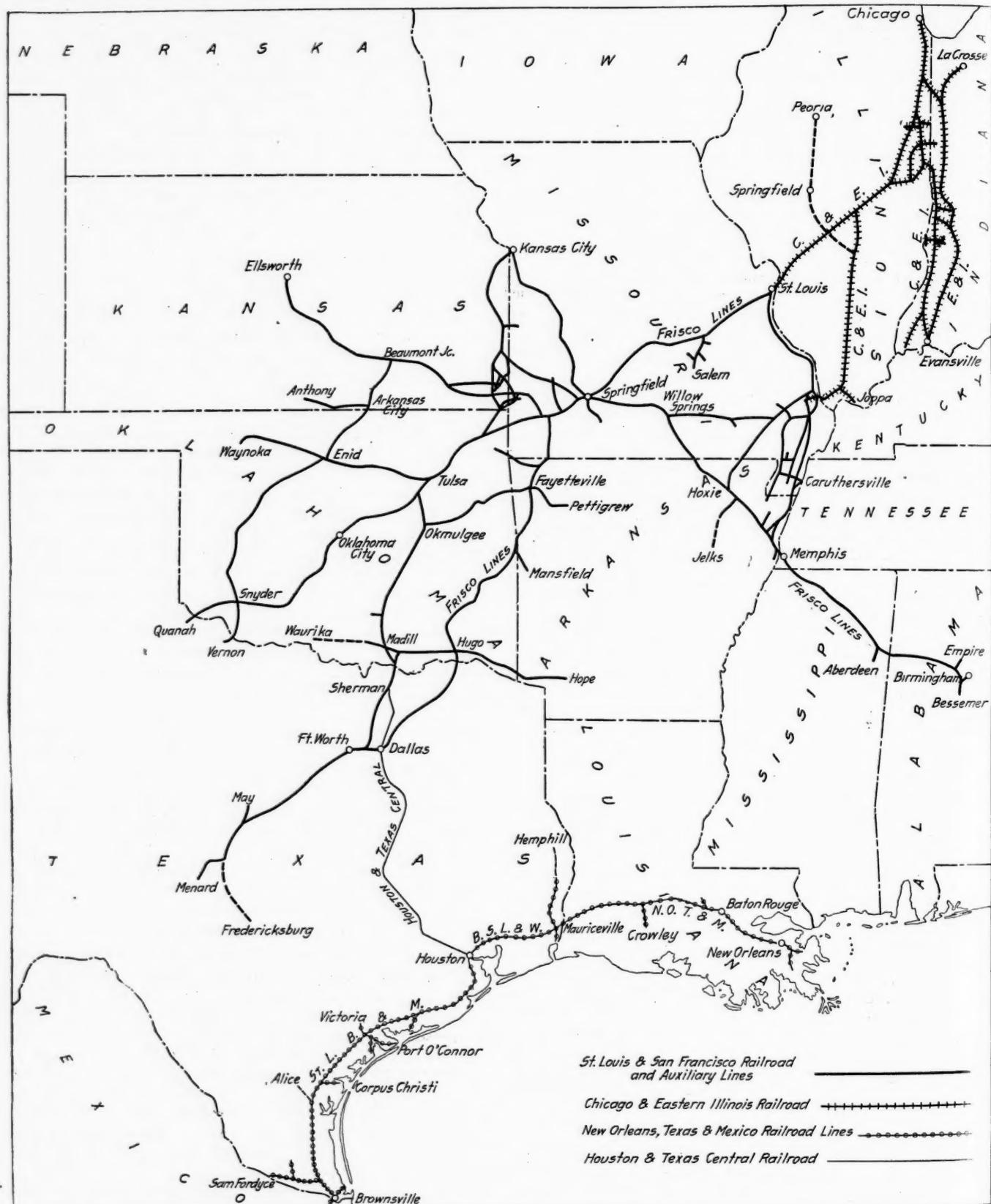
ST. LOUIS & SAN FRANCISCO.

THE St. Louis & San Francisco operates 5,241 miles of road covering the territory southwest from St. Louis and Kansas City, and with lines in the Mississippi valley from St. Louis to Memphis, with a line to Birmingham, Ala. Through the control of the Chicago & Eastern Illinois, the annual report of which is commented on elsewhere in this issue, the Frisco has its own connection with Chicago. The St. Louis & San Francisco has not only a fairly heavy capitalization on its own property, but in the guarantee of the bonds of the New Orleans, Texas & Mexico lines (shown by a separate symbol on the map, as distinguished from the Frisco lines proper) and the carrying charges of the C. & E. I., it has additional heavy burdens.

After the separation of the Frisco from the Chicago, Rock Island & Pacific, the financial problem facing the St. Louis &

San Francisco was a serious one. To add to this problem in the fiscal year ended June 30, 1912, the company had to meet operating and traffic conditions that were quite unusually severe. On its northern lines the winter months were a particularly heavy

lines between St. Louis and Memphis and between Kansas City and Memphis were out of commission. During part of this time 153 miles of track was so damaged by floods as to be impassable. During the second half of the year gross operating revenues de-



The St. Louis & San Francisco System.

strain, and in the last six months of the fiscal year the floods in the Mississippi valley did an amount of damage that had never before been experienced. From March 24 to May 10 the main

increased over the corresponding period in the previous fiscal year by \$486,000, while operating expenses increased by \$421,000.

Taking into consideration these facts, the showing made by

the management is an example of railroading that merits attention. By a reduction of \$611,000, or slightly over 2 per cent., in operating expenses, in the face of such operating conditions as have been mentioned, the management was able to, in part, offset a decrease in total operating revenues of \$1,059,000, or 2.5 per cent., earning in 1912 \$13,391,000 net operating revenue and showing, after the payment of taxes, interest charges, interest on guaranteed securities and guaranteed dividends on the Kansas City, Fort Scott & Memphis and the Chicago & Eastern Illinois, a slight surplus amounting to \$177,000. It should be mentioned, however, that there was a deficit from the New Orleans, Texas & Mexico lines, which are operated separately, of \$904,000, which deficit is charged to the St. Louis & San Francisco's profit and loss account and which, if charged to this year's income, would have changed the surplus shown to a deficit of \$727,000.

Ever since the separation of the Frisco from the Rock Island the management directly in charge of the operation of the property has been imbued with the spirit that the solvency of that great railroad property could only be maintained through extraordinary efforts on their part, and this spirit of carrying on the hand-to-hand fight against heavy odds has permeated through the entire organization to a remarkable degree. The economies of operation, the adoption of the most modern and enlightened policy toward freight damage claims and other methods that have been adopted, have been described at different times in the *Railway Age Gazette* in the past year. If operating statistics showed on their face no improvement in 1912 over 1911, the fact that the management had succeeded in holding its own under such severe conditions as were encountered from January to June, 1912, would reflect a considerable degree of success for their efforts; but the annual report shows that not only did the officers hold their own, but made absolute gains.

The number of tons of revenue freight carried one mile totaled 2,715,000,000, an increase of 39,000,000 ton miles, or 1.5 per cent. The number of passengers carried one mile totaled 474,000,000 in 1912, a decrease of 32,000,000 from 1911. With the increase of 1.5 per cent. in ton mileage, there was a decrease of 1,466,000 miles in freight train mileage, the total for 1912 being 10,170,000. The decrease in freight train mileage amounts to 12.6 per cent. As is almost universally the case, the company was unable to reduce passenger train mileage to correspond to a reduction in passengers carried one mile, so that the passenger train mileage in 1912 was 10,575,000, a decrease of but 15,000 train miles from 1911. Freight locomotive mileage in 1912 totaled 10,530,000, a decrease of 1,470,000 freight locomotive miles. This is a decrease of 12.25 per cent. The average revenue train load was 255 tons in 1912, as against 221 tons in 1911, an increase of 44 tons, or 20 per cent., which in a year in which bitter cold, on one end of the line, and disastrous floods, on the other, contributed their full share toward disorganizing train service, is a record that is well worth mentioning.

A study of the financial showing of the company emphasizes the importance and insistent nature of the problem that the operating management has had to meet. Total other income, which includes income from securities owned, including the Kansas City, Fort Scott & Memphis and the Chicago & Eastern Illinois, amounted in 1912 to \$1,842,000, while interest on guaranteed securities amounted to \$2,564,000 and dividends on trust certificates of the K. C. F. S. & M. and the C. & E. I. amounted to \$1,578,000. In addition to this there was a deficit, as has already been mentioned, of \$904,000 on the New Orleans, Texas & Mexico lines (the Frisco guarantees the N. O. T. & M. bonds.) During the year ended June 30, 1912, the St. Louis & San Francisco issued \$5,502,000 general lien 5 per cent. bonds, and the total increase in funded debt amounted to \$7,586,000. There was, however, a decrease of \$5,704,000 in collateral trust bonds and \$1,029,000 in equipment trust certificates, so that the net increase in debt amounted to \$853,000.

During the year the company spent \$1,393,000 for additions and betterments to its property, exclusive of equipment, and

\$1,925,000 net for equipment, making a total of \$3,318,000. At the end of 1912 the company had on hand \$6,050,000 cash, with a total of \$14,086,000 working liabilities, of which \$2,790,000 is loans and bills payable. Nothing was charged during the year to the income account for discount on securities, but \$857,000 was debited to profit and loss. There was, however, at the end of 1912 \$12,930,000 unextinguished discount on funded debt carried on the balance sheet, which, notwithstanding the charge made to profit and loss, is an increase of \$1,340,000 during the year. A condensed general balance sheet for June 30, 1912, is given which includes the St. L. & S. F., the C. & E. I. and the N. O. T. & M. This condensed balance sheet shows cash on hand of \$7,517,000, included in total working assets of \$28,169,000, with \$7,459,000 loans and bills payable included in working liabilities, amounting in all to \$23,133,000.

As a railroad property the St. Louis & San Francisco and its leasehold estates and auxiliary lines has great possibilities. Average earnings per mile on the Frisco amount to in the neighborhood of \$8,000 (\$8,032 in 1912.) The property has a freight density of 517,969 ton miles per mile of road and a passenger density of 90,512 passenger miles per mile of road. In 1912 maintenance of way and structures consumed 12.16 per cent. of total operating revenues; maintenance of equipment, 13.11 per cent., and transportation expenses, 37.24 per cent. Maintenance in 1912 consumed a slightly smaller proportion of revenues than in 1911, while transportation expenses consumed a slightly larger proportion. The operating ratio in 1912 was 68.19, and in 1911, 67.94.

Of the total tonnage carried in 1912, amounting to 16,986,000 tons, 39.03 per cent. was furnished by products of mines, 17.67 per cent. by products of forests, 17.68 per cent. by products of agriculture, 14.49 per cent. by manufactures, 5.31 per cent. by merchandise (L. C. L.) and 3.89 per cent. by animals and animal products. The most notable changes in the character of tonnage carried was a decrease of 9.61 per cent. in the tonnage of products of forests, and it is rather interesting to note that the tonnage of lumber amounted to 2,337,000 in 1912, which is 20.30 per cent. more than in 1911. Other forest products furnished but 664,000 tons, a decrease of 51.81 per cent. from 1911. Products of agriculture totaled 3,004,000 tons in 1912, which was greater by 17.53 per cent. than in 1911.

The following table shows the principal figures for operation in 1912, as compared with 1911:

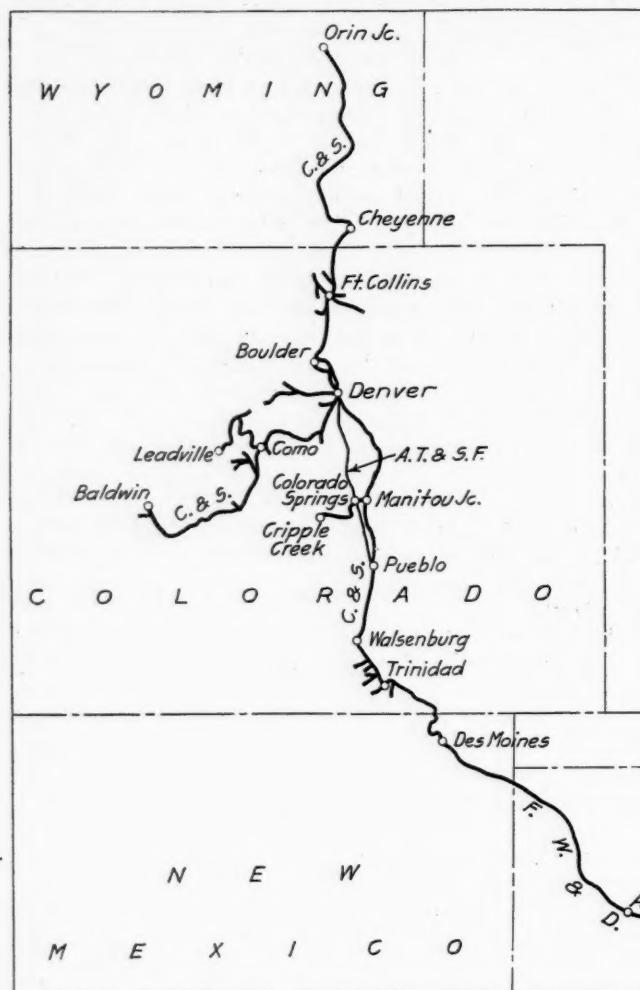
	1912.	1911.
Average mileage operated.....	5,241	5,188
Freight revenue	\$27,505,798	\$28,071,782
Passenger revenue	11,490,509	11,999,385
Total operating revenue.....	42,100,364	43,159,228
Maint. of way and structures.....	5,118,924	5,470,179
Maint. of equipment.....	5,521,171	5,738,290
Traffic expenses	1,098,446	1,085,847
Transportation expenses	15,678,945	15,737,165
General expenses	1,292,103	1,288,919
Total operating expenses	28,709,589	29,320,400
Taxes	1,957,583	1,811,827
Operating income	11,433,192	12,027,001
Total income	12,992,510	14,360,971
Net income	177,399	1,535,404

COLORADO & SOUTHERN.

ALTHOUGH both freight and passenger revenue fell off in the fiscal year ended June 30, 1912, the Colorado & Southern lines were able to reduce operating expenses sufficiently to in good part offset this loss in revenue, so that after paying expenses, taxes, rentals and interest, the company had net income available for dividends of \$1,500,000, as against \$2,299,000 in 1911. Two per cent. dividends were paid in both years, and there was a surplus of \$200,000 in 1912, as against a surplus of \$99,000 in 1911. Included in charges to income in both years was half the deficit of the Trinity & Brazos Valley, which is controlled jointly by the Chicago, Rock Island & Pacific and the Colorado & Southern.

The reduction in revenue resulted from a smaller number of passengers carried; a smaller tonnage of freight carried, with a shorter average haul for freight; a very slightly lower

passenger mile rate, and a lower average ton mile rate for freight. The total number of passengers carried was 3,181,000 last year, a decrease of 662,000 from the previous year; and the average receipts per passenger per mile were 2.52 cents in 1912 and 2.53 cents in 1911. The number of tons of freight car-



The Colorado & Southern Lines.

ried totaled 7,148,000 in 1912, a decrease of 617,000 tons from 1911; and the ton mileage was 1,058,000,000 in 1912, a decrease of 113,000,000 ton miles from 1911, the average haul being 148 miles in 1912 and 151 miles in 1911; and the average receipts per ton per mile were 9.31 miles in 1912 and 9.49 miles in 1911.

The Colorado & Southern forms a line connecting the Burlington with the gulf of Mexico. It gives the Hill lines a gulf of Mexico outlet and a feeder for the traffic which originates in the mountains of Colorado and on the gulf of Mexico and in Texas destined for points either northwest or northeast of Colorado.

The Colorado & Southern operated in 1912 on a 68.88 per cent. ratio of expenses to operating revenues, as against a 65.30 per cent. in the previous year.

It is interesting to make some comparison of the changes that have taken place both in character of traffic, earnings and in physical condition since the Burlington acquired control. The last annual report signed by the management which sold control to the Burlington was that for 1908. In the four years since 1908 there was spent for additions and betterments \$1,232,000 in 1909, \$795,000 in 1910, \$2,502,000 in 1911, and \$678,000 in 1912. This does not include expenditures for extensions and new lines. In 1908 the company operated 1,952 miles of road, and in 1912, 1,881 miles.* In 1908 total operating revenues amounted to \$14,-

*The mileage for 1908 is that operated at the end of the year, and the mileage for 1912 is the average for the year.

281,000, and in 1912 to \$13,960,000. There was carried a total of 6,684,000 tons in the year 1908, and 7,148,000 tons in 1912. Of the total tonnage carried in 1908, 75.03 per cent. originated on Colorado & Southern lines and 24.97 per cent. on foreign lines; and of the total freight revenue, 70.60 per cent. was from freight originating on Colorado & Southern lines, and 29.40 per cent. from freight originating on foreign lines. In 1912, of the total tonnage carried, 68.43 per cent. originated on the Colorado & Southern and 31.57 per cent. on foreign lines; while 61.41 per cent. of the total freight revenue was from freight originating on the Colorado & Southern, and 38.58 per cent. from freight originating on foreign lines. Of the total tonnage carried in 1908, 61.75 per cent. was products of mines, as against 66.76 per cent. in 1912; 14.08 per cent. was products of agriculture in 1908 and 13.21 per cent. in 1912; 8.20 per cent. was manufactures in 1908 and 9.26 per cent. in 1912; 6.22 per cent. was lumber in 1908 and 3.34 per cent. in 1912.

The average receipts per ton per mile in 1908 were 1.134 cents, as against average receipts per ton per mile of 9.31 mills in 1912. The average trainload in 1908 was 257 tons, and in 1912 was 314 tons.

In addition to the expenditures for betterments made in the year 1912 that have previously been mentioned, the Colorado & Southern spent \$1,367,000 for new lines and extensions. The net increase in funded debt was \$3,736,000. The company had on hand \$747,000 cash at the end of 1912, with no loans and bills payable and with a total of \$1,557,000 working liabilities. At the end of 1911 the company had \$1,477,000 cash, with no loans and bills payable, and with total working liabilities of \$2,674,000.

The following table shows the principal figures for operation in 1912, compared with 1911:

	1912.	1911.
Average mileage operated	1,881	2,016
Freight revenue	\$9,850,049	\$11,120,361
Passenger revenue	3,246,773	3,870,672
Total operating revenue	13,959,976	15,824,065
Maint. of way and structures	1,637,316	1,688,223



Maint. of equipment	2,532,181	2,779,143
Traffic expenses	236,127	239,692
Transportation expenses	4,728,765	5,112,952
General expenses	482,066	514,101
Total operating expenses	9,616,454	10,334,111
Taxes	511,470	478,323
Operating income	3,807,529	4,978,345
Total income	4,597,803	5,623,566
Net income	1,499,968	2,298,592
Dividends	1,300,000	1,300,000
Surplus	199,968	998,592

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.

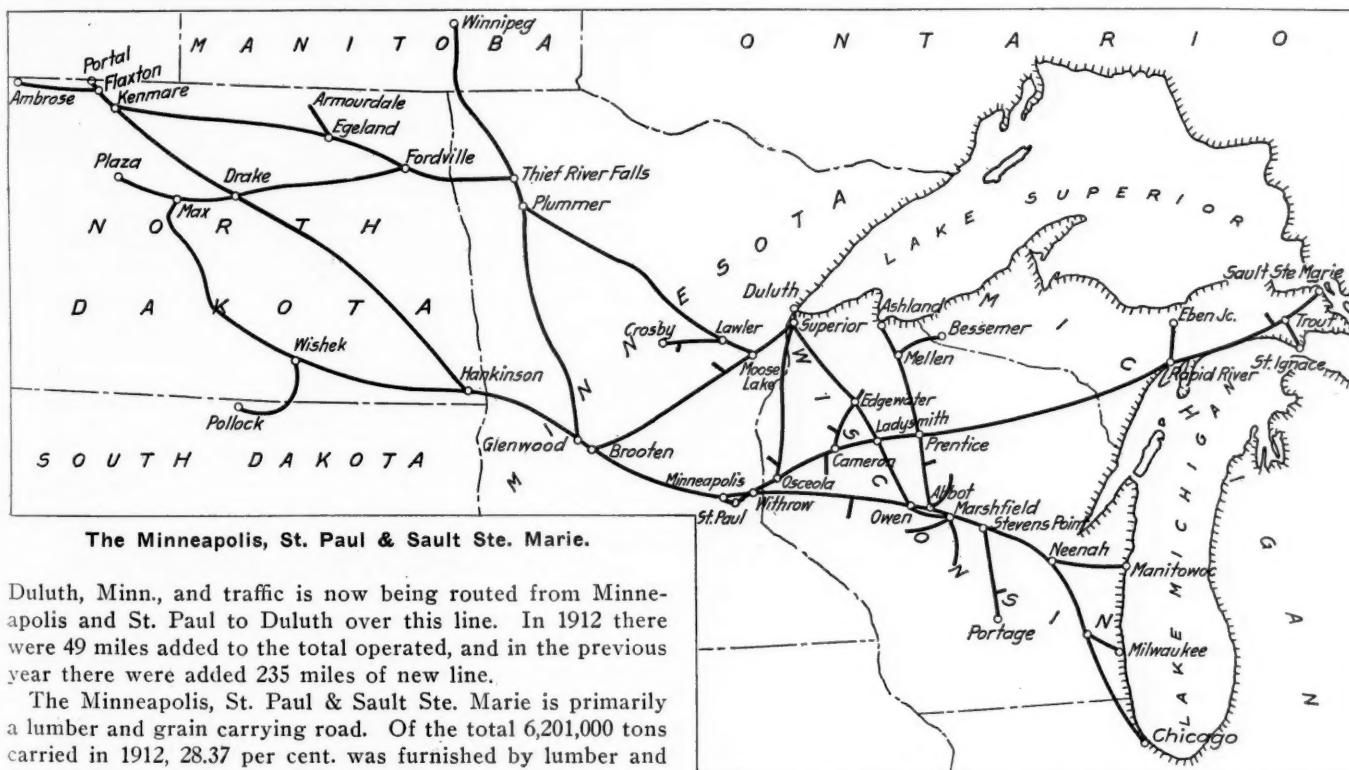
IT is unusual and decidedly refreshing to find a road that showed very substantial increases in gross revenue in the fiscal year ended June 30, 1912. The Minneapolis, St. Paul & Sault Ste. Marie Railway Company, which operated, in 1912, 3,773 miles, earned in that year very materially the largest gross in its history and saved for net \$7,519,000, or slightly more than in its previous most prosperous year, 1910, operating, however, in 1912 on a ratio of 56.0*, as compared with 52.7† in 1910. Grain crops in the territory served were below the average yield in 1912. The winter was severe, and the Soo connection with the Canadian Pacific must, moreover, have to meet to a certain extent the competition of the St. Paul for through business to the Pacific coast. As President Pennington, however, somewhat dryly remarks: "The increase in gross earnings [there was an increase from \$12,819,000 in 1911 to \$16,771,000 in 1912] under the somewhat depressing commercial conditions that have existed during the past two years, reflects to some* extent the growth in development of the country adjacent to the more recently constructed lines."

The Soo has completed its extension from Frederic to

before. Passenger revenues amounted in 1912 to \$3,872,000, as against \$3,191,000 in 1911. The average receipts per passenger per mile were 2.292 cents in 1912, as against 2.367 cents in 1911.

The average train load on the Soo is heavy for a road with such a small proportion of its tonnage furnished by coal, and in 1912 there was an increase of 68 tons in the average train load, making the 1912 figure 396 tons. The comparison with 1911 is with a poor year; but in 1910, which was a year of very heavy traffic, the average train load was 378 tons, so that 1912 shows a substantial gain over that year. The increase in train load was largely due to better carloading, the average number of loaded cars per train being 21.76 in 1912 and 21.46 in 1911, while the average number of tons per loaded car was 18.18 in 1912 and 15.30 in 1911. There was a substantial reduction in empty cars per train, the average being 6.84 in 1912 and 7.96 in 1911.

The principal financing done during the year was the sale of \$1,520,000 first mortgage consolidated bonds and \$1,020,000 equipment trust notes. In addition there were sold \$3,500,000 Wisconsin Central first and refunding mortgage bonds. These are not a liability of the Minneapolis, St. Paul & Sault



The Minneapolis, St. Paul & Sault Ste. Marie.

Duluth, Minn., and traffic is now being routed from Minneapolis and St. Paul to Duluth over this line. In 1912 there were 49 miles added to the total operated, and in the previous year there were added 235 miles of new line.

The Minneapolis, St. Paul & Sault Ste. Marie is primarily a lumber and grain carrying road. Of the total 6,201,000 tons carried in 1912, 28.37 per cent. was furnished by lumber and 16.18 per cent. by grain. There was a falling off of lumber traffic in 1912, the total for that year amounting to 1,759,000 tons, as compared with 1,810,000 tons in 1911. On the other hand, there was a substantial gain in the tonnage of grain, which totaled 1,004,000 tons in 1912, as against 627,000 in 1911. The tonnage of bituminous coal amounted to 548,000 tons in 1912, as against 236,000 in 1911.

The Soo is a road with comparatively light earnings per mile, but with a very low operating ratio. The total operating revenues per mile of road in 1912 averaged \$6,119, as against \$4,858 in 1911. The ratio of operating expenses to total operating revenues was 55.7*, and the ratio of maintenance, including both way and equipment, to total operating revenues was 22.2. Transportation expenses consumed 29.7 per cent. of total operating revenues.

Notwithstanding the small amount of coal carried, the average receipts per ton per mile are low, being 7.22 mills in 1912, as against 8.15 mills in 1911. The average length of haul was 267 miles last year, as against 214 miles the year

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At the end of 1912 the Soo was in a strong position as regards working capital. There was on hand \$5,271,000 cash, with no loans and bills payable, and but \$5,315,000 total working liabilities. This compares with \$2,520,000 cash on hand at the end of 1911, and total working liabilities of \$4,536,000. The Soo was carrying at the end of 1912 \$313,000

*Including in both years "Outside Operations."

†Excluding "Outside Operations."

unextinguished discount on funded debt and showed a profit and loss credit of \$11,707,000.

The Central Terminal company mentioned above was incorporated with \$2,000,000 capital stock, which was subscribed for by the Minneapolis, St. Paul & Sault Ste. Marie. This company has bought a tract of land in Chicago, on the west side of the Chicago river, between Canal and Clinton streets, running from Twelfth street to West Fifteenth street, and contracts have been let for a modern freight terminal. Trackage rights have been given by the Baltimore & Ohio Chicago Terminal Railroad, giving the newly acquired property a connection with the Chicago division of the Soo, and land has been bought for a connection with the B. & O. Chicago Terminal. The proceeds from the sale of the \$6,000,000 bonds are, it is estimated, sufficient to complete the terminals as now planned.

The Soo, handling as it does such a large tonnage of products of agriculture, has been, since the close of the fiscal year, handling a very large freight business. The country which it serves is more prosperous than it has been for years, and with the extraordinarily good weather that has prevailed, congestion and car shortage have been held down to a minimum, so that the prospects for earnings in the fiscal year 1913 are unusually bright.

The following table shows the principal figures for operation in 1912, compared with 1911:

	1912.	1911.
Average mileage operated.....	2,741	2,639
Freight revenue	\$11,934,792	\$8,726,608
Passenger revenue	3,872,488	3,190,564
Total operating revenue	16,770,700	12,819,188
Maint. of way and structures	1,697,402	1,427,664
Maint. of equipment	2,027,240	1,817,107
Traffic expenses	295,361	286,770
Transportation expenses	4,985,876	4,326,936
General expenses	336,565	304,688
Total operating expenses	9,342,444	8,163,165
Taxes	1,123,136	839,306
Operating income	6,396,142	3,920,607
Total income	7,454,378	4,833,811
Net income	4,224,290	1,831,427
Dividends	2,417,037	2,287,360
Surplus.....	1,807,253	*455,933

*Deficit.

CHICAGO & EASTERN ILLINOIS.

THE question of fuel supply for railroads is often one that is not given as much attention in the discussion of a railroad's operating costs as it properly deserves. It is, however, a question which ranks in importance with grades and with density of traffic. The Chicago & Eastern Illinois not only forms the Chicago connection for the St. Louis & San Francisco, which controls it, but is of great importance in itself as one of the heavy coal carrying roads entering Chicago. Even on this road, however, the problem of locomotive fuel supply at a reasonable cost has become more and more difficult. President Winchell, in the C. & E. I. report for the fiscal year ended June 30, 1912, points out that when there has been large demand for coal and the market price has risen above the price at which it has been contracted by the railroad company, the company has not always been able to obtain full deliveries and has "even been obliged to confiscate a certain portion of the coal offered for commercial shipment in order to haul the balance to market."

During the past fiscal year the C. & E. I. has bought 10 operating coal mines in Montgomery county, Ill., and Vermillion county, Ind., and additional coal lands in Sullivan county, Ind. The total purchases include 41,425 acres of coal lands. The mines have been leased to coal companies, but under conditions that insure an ample supply of coal for the company's use.

A further step of importance in the future operating economies of the road has been the consolidation, which became effective July 1, 1911, of the Chicago & Eastern Illinois, the Evansville & Terre Haute and the Evansville Belt Railway.

The C. & E. I. now operates 1,275 miles of road. Total operating revenues in 1912 amounted to \$15,216,000, an increase of 2.3 per cent. over operating revenues in 1911. Operating expenses amounted to \$10,900,000 in 1912, an increase of \$795,000,

or 7.9 per cent., over 1911. There was available for dividends, after the payment of interest and rentals, \$1,058,000 in 1912, as against \$1,542,000 in 1911. Regular dividends of 6 per cent. were paid on the preferred stock and 5 per cent. was paid on the common stock, contrasting with 9½ per cent. paid on the common in 1911. This left a surplus in 1912 of \$105,000, as against \$326,000 surplus at the end of 1911.

The number of tons carried one mile totaled 2,106,000,000 in 1912, as against 2,127,000,000 in 1911. The number of passengers carried one mile, however, totaled 162,400,000 last year, as against 157,600,000 the year before. Notwithstanding the slight decrease in ton mileage, there was a slight increase in freight train mileage, the total in 1912 being 3,980,000 freight train miles, as against 3,885,000 in 1911. The revenue train load in 1912 was 511 tons, as against 528 tons in 1911.

The Chicago & Eastern Illinois has a very heavy freight density, amounting in 1912 to 1,651,000 ton miles per mile operated. Of the total tonnage carried in 1912, 62.23 per cent. was products of mines. The principal changes in the character of tonnage carried were a decrease of 5.20 per cent. in the tonnage of products of mines, a decrease of 4.39 per cent. in the tonnage of manufactures, and an increase of 3.88 per cent. in the tonnage of products of agriculture.

The decrease in train load and the increase in freight train mileage are explained by the severity of the winter, and further by the fact that from April 1, for two months, the coal mines served by the C. & E. I. were closed. Coal shipments were crowded into the months preceding this shutdown, and, of course, this uneven movement of traffic was detrimental to the most economical operation.

The C. & E. I., although moving such a large proportion of low grade tonnage, operates on a rather high ratio—71.63. In 1912 maintenance of way and structures consumed 9.61 per cent. of total operating revenues; maintenance of equipment, 18.26 per cent.; traffic expenses, 2.38 per cent., and transportation expenses, 38.19 per cent. Possibly one reason for this high operating ratio is the fact that the C. & E. I. operates in very highly competitive territory for passenger business. The number of passengers carried one mile totaled 162,400,000 in 1912, and the mileage of passenger trains totaled 3,094,000. The average revenue per passenger per mile is but 1.79 cents, which is entirely too low for the kind of passenger service that the C. & E. I. affords. The average passenger journey is 35.34 miles.

The following table shows the principal figures for operation in 1912, compared with 1911:

	1912.	1911.
Average mileage operated.....	1,275	1,275
Freight revenue	\$11,138,149	\$11,042,556
Passenger revenue	2,900,522	2,810,413
Total operating revenues	15,215,513	14,880,409
Maint. of way and structures	1,462,319	1,517,682
Maint. of equipment	2,778,230	2,347,107
Traffic expenses	362,549	346,853
Transportation expenses	5,810,822	5,415,155
General expenses	485,759	478,300
Total operating expenses	10,899,752	10,105,098
Taxes	426,593	461,967
Operating income	3,889,169	4,313,343
Total income	4,718,361	5,219,097
Net income	1,057,799	1,541,767
Dividends	952,853	1,215,533
Surplus	104,946	326,234

NEW BOOKS.

Steel Mill Buildings. By Milo S. Ketchum, C.E., Dean of the College of Engineering, University of Colorado. Third edition. 6½ in. x 9 in.; 562 pages; 270 illustrations and 66 tables. Price, \$4. McGraw-Hill Book Company, New York.

In this third edition of Ketchum's "Steel Mill Buildings," the chapters on "Stresses in Frame Structures" and "Stresses in Bridge Trusses," have been rewritten and enlarged. The "Specifications for Steel Frame Buildings" have been revised, many of the cuts have been redrawn and many other revisions and additions have been made. This book is already well known as a text in engineering schools, and although it was written primarily for instruction purposes, it has been favorably received by engineers as a reference book.

Letters to the Editor.

THE LARGEST RAILWAY SHOPS.

NEW YORK, November 25, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In his "Impressions of British Railway Practice" in your issue of November 15, 1912, page 921, H. W. Jacobs says that: "The railway shops of the London & North Western, at Crewe, England, are probably the largest in the world, employing from 8,000 to 10,000 men." If I am not mistaken, the Altoona shops of the Pennsylvania Railroad are larger, employing about 12,000 men or more in busy times.

MOHAWK.

A NOMINATION THAT SHOULD BE UNANIMOUS.

NEW YORK, November 25, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The retirement of Mr. McCrea from the presidency of the Pennsylvania Railroad Company suggests to those who know the man the hope that the government of the United States can in some manner arrange to secure his valuable help in transportation matters. Most of the European governments have commissions which exceed in general usefulness anything in this country. If it be possible to do so, this would appear to be the opportunity for securing at least a portion of the services of a gentleman who by education, experience and personal attainments has mastered thoroughly the transportation business from start to finish.

Mr. McCrea's high character and the unquestionable position that he has gained by long years of hard and important work in most trying positions, entitle him to the respect that is today accorded him by his fellow workers and by all who know him. His position is acknowledged by all who know of his successful management of the immense properties which have been entrusted to him.

His past history more than justifies a firm belief in his impartial judgment and in the honesty of the opinions that he might be called on to give on the knotty and important transportation questions that would be submitted to him for solution.

While, no doubt, our legal brethren feel fully qualified to pass judgment on transportation questions with as much affability as they would on legal ones, which they understand, I believe I am safe in assuming that even these gentlemen would gladly avail themselves of the assistance of such a man as Mr. McCrea; for they are familiar with his known independence and freedom from all influences except those that he believes to be right and just.

It is certainly time that the unfortunate transportation goose of much fame that has laid such wonderful golden eggs, of convenience and value for the entire country, should be better understood and appreciated, and receive the intelligent treatment it deserves. Could anyone be selected who could so well supply the explanations so much needed by congressional committees and by the commission, or whose opinion would be received with so much consideration and so little question?

These suggestions are based upon a knowledge gained in railroad and governmental service which leads to the belief that many of our present troubles and misunderstandings come from a general lack of information, especially on the part of the public and from the want of explanations intelligible and illuminating to those in authority.

From personal experience with the public, the writer is satisfied that just plain, commonplace information will go far to relieve the present embarrassment and to rectify the peculiar relationship that unfortunately now exists between the shipper and the transportation company, a relationship on whose success the entire business prosperity of the country

so largely depends. Hence this suggestion that the opportunity for securing such valuable assistance should not be overlooked. Every endeavor should be made to interest Mr. McCrea in the service of the government; that is, the service of the whole people.

C. NEILSON.

NEED OF A HIGHER DEMURRAGE CHARGE.

SAN FRANCISCO, Cal., November 19, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have read your article, page 868, November 8, in reference to the circular issued by the Interstate Commerce Commission pertaining to the freight car shortage.

In my opinion, the Commission has not touched upon the proper remedy. Stress is laid on the fact that the average movement of freight cars is less than twenty-five miles a day and that this low movement is not adequate to the need. We all can agree with the Commission that it is desirable to obtain a higher average movement per car per day; but the cause of the low mileage does not seem to have been analyzed.

A study of the situation will develop the fact that a great proportion of the traffic of this country is tributary to populous or industrial centers, the traffic movement originating and ending within a radius of one hundred miles. In many of such zones, the free time on certain commodities is as much as 72 hours—in some cases, 96 hours. The movement of cars to and from these centers will consume, at the outside, ten hours; while in loading or unloading the free time is used to the limit.

The taking advantage by the consignor and consignee of the full free time allowed—in many cases on the part of the consignee of much beyond the free time—for storage purposes, is the true cause of the low mileage made by freight cars. If the Interstate Commerce Commission and the several State commissions would prescribe a demurrage rate of \$5 a day, with a maximum free time of 48 hours, with no allowance for inclement weather, there would immediately be sufficient equipment available to meet the traffic requirements of the country at this time.

W. R. SCOTT,
General Manager, Southern Pacific Company.

[The significance of Mr. Scott's views lies in the fact that in California, the state where he lives, a high demurrage rate has been in force for over three years; first a rate of \$6 and then (for the last year and a half) one of \$3 a day. What he says, therefore, is based on the lessons of actual experience.—EDITOR.]

STRICT DISCIPLINE IN SMALL THINGS.

NASHVILLE, Tenn., November 18, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Answering "J. S. M." who published his views with regard to the flagging rule in the *Railway Age Gazette* of November 8: When a red lantern is held in the same hand with a white, the red cannot be seen for any distance. I appreciate that a white light can be seen farther, but one must keep in mind that two kinds of a stop signal may be given by lantern, one to give notice of danger ahead, another to bring a train to a halt to pick up a car or some passengers. The former is much more vital and requires prompt action, therefore makers of rules prefer that it be given by red lantern. I see no objection to first signaling stop with the white lantern, but I do not recommend it. The present method is known to be safe, so there should be no departures therefrom.

It is true that to threaten a child with punishment and not in each case administer it when commands are disregarded, is not the proper way to discipline; but if one says to a flagman that there are some rules much more vital than others and that

to violate those more important rules is unsafe, forbidden, and will result in dismissal, I see nothing wrong with the proposition. They then know just what to expect, as is known with regard to the use of intoxicants. The code provides possible dismissal for taking a nip; but I think that neglect in flagging has cost more lives than the use of whiskey ever did. I will adhere to my original belief that flagmen should be warned that if they do not promptly protect their trains they will be discharged, and that it will be done without regard to whether an accident occurs. I will go further; I will say that engineers who permit their green signals to fail on the front of the engine and thereby endanger the lives of men on the following section, ought to also be discharged. There is too much carelessness; men do not inspect these front-end signals as often as they should, nor do they report those that are in bad order and cannot be kept burning. Flags are lost off and the trip is continued with only one flag, or, sometimes, with only a part of one flag. One of the weakest features of the whole organization on American railroads is the failure to report irregularities so they can be corrected. Men are constantly tempted to piece along with a defective appliance, hoping that it may be discovered by others and reported, or that they will not get the same engine on the next trip.

H. W. FORMAN.

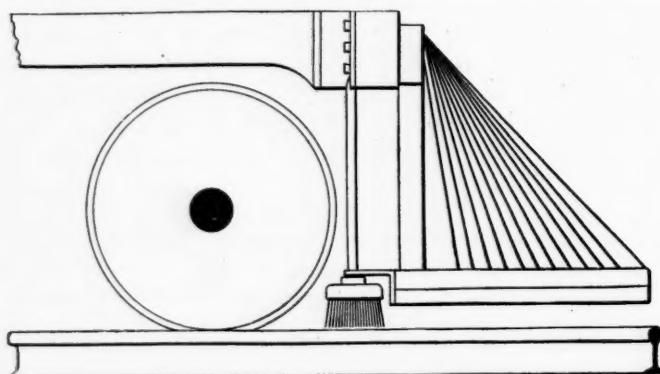
SAFEGUARDING THE LOCOMOTIVE.

TENAFLY, N. J., November 12, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Referring to Mr. Caruthers' letter which appeared in your issue of November 8, page 875, and in which it was proposed to add English "life guards" to American locomotives. It appears to me that the scheme would not be of much value, for the reason that as there must be a certain clearance between the rail and the pilot there would have to be the same clearance between the rail and the life guard, as they are both rigid structures. Therefore, objects too small to be reached by the pilot would obviously escape the life guard.

As long as we have trespassers on our tracks and mischievous boys who will place small articles on the rails "just for fun,"



A Flexible Device for Clearing the Rail of Small Obstructions.

it seems that there should be some elastic or yielding device which can be placed nearer to the rail than the pilot. Some years ago, when in England, I saw several locomotives fitted with steel wire brushes. They were bolted to the frames immediately behind the life guards, and a short link near the brush back secured it firmly to the life guard. I never heard any objection made to these brushes, but I do not think they are in use at the present time.

The accompanying sketch will show how the brushes could be applied to an American locomotive; or the brush back could be fastened to the rear of the pilot only, instead of hanging it from the front bumper. There is no doubt these brushes would clear the rail of small obstructions, such as bolts or spikes, which

will sometimes derail an engine, but whether there would be danger of removing torpedoes from the rail is a question.

HERBERT T. WALKER.

TENDER DERAILMENTS.

STAMPS, Ark., October 27, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Referring to the recent articles by E. W. Summers and others concerning tender derailments. These and derailments of cars chargeable to the same cause, have been the subject of much controversy, probably owing to the obscurity of the causes. The writer has personally investigated many such accidents, and in every instance imperfections in the track surface were found back of the point of derailment. In many cases the derailed truck appeared to have been violently and *instantaneously* slewed around to an angle of sometimes 20 or 30 deg., with the rail at the point of derailment. The inference seems fair that the variations in cross-level produce lateral oscillations of the car body. Ordinarily such oscillations are dissipated through the springs, but when there is a succession of cross-level variations, such that the front and rear trucks are simultaneously depressed, and thus the oscillations of the car body accentuated, the oscillations become violent. If the speed be such that there is an impulse transmitted to the car body through the side bearing at the instant that the car body is at the point of maximum oscillation, the springs are closed, and a violent shock follows.

The force producing motion in the car is transmitted along the center line, through the center pin, thence through the truck bolster to the truck and wheels. We may consider that this force is transmitted to the wheels on each rail, half to each side, when the load is not oscillating, but is carried entirely upon the center plate. But when the load is at the point of maximum oscillation there is a much larger proportion of the load carried on one side than on the other. This means that there is much more weight carried on the wheels on that side than on the other at that particular instant. Now, since with a given force the acceleration varies inversely as the weight and directly as the time, it follows that when the car body is at the point of maximum oscillation with springs fully compressed, and with the vertical reaction through wheels on one side suddenly increased, and on the other as suddenly decreased, and with the accelerating force remaining constant as to amount and point of application, the acceleration of the lighter side is suddenly *increased*, and of the heavy side as suddenly *decreased*, and the truck is suddenly and violently slewed and derailment results.

Mr. Summer's conclusions are practically the same as the above, but it would seem that in his graphical demonstration he has attempted the resolution of the product of force and distance (momentum), which in the writer's opinion is improper. My experience agrees with the views expressed by Mr. Walsh as to the decrease in tender derailments by decreasing the distance between side bearings. It would seem that the reason for this is that by shortening the lever arm the danger of fully compressing the springs decreases. After all is said, however, the best prophylaxis for such derailments is good track.

F. W. GREEN,
General Manager, Louisiana & Arkansas.

BRAZILIAN RAILWAY CONCESSION.—The president of the state of Minas Geraes has signed a decree granting a concession for the construction and operation of a railway from Antonio Dias on the Victoria to Minas railway to the Cacumba Serra.

EQUIPMENT ON THE FEDERATED MALAY STATES RAILWAY.—In February, 1912, the Federated Malay Railway had in service 114 locomotives, of which 33 were of Pacific type, 38 of the ten-wheel type, and 43 were smaller engines. On the same date there were 2,229 freight cars of various types and 271 passenger cars.

FAIRBANKS-TUCSON EXTENSION OF E. P. & S. W.

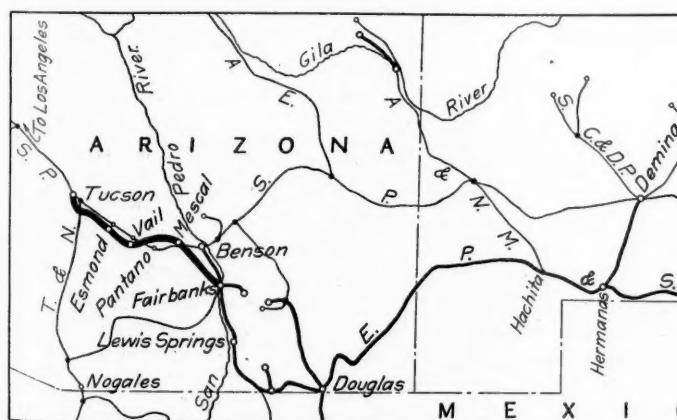
Gives This Company a Larger Proportion of Haul on Trans-continental Traffic. Details of Standard Concrete Structures.

The El Paso & Southwestern, extending from Dawson, N. M., 404 miles east of El Paso, Tex., to Benson, Ariz., 296 miles west of that point, with a number of branch lines to timber and copper fields in New Mexico and Arizona, is now an intermediate carrier of transcontinental business between the Rock Island at Tucumcari, N. M., and the Southern Pacific at El Paso, Tex., a distance of 331 miles.

An extension of this road from Fairbanks, Ariz., 65 miles west to a new connection with the Southern Pacific at Tucson, Ariz., 341 miles west of El Paso, will be completed by the end of 1912, making it possible to handle through business from Tucumcari to Tucson, 672 miles, an increase over the present haul from Tucumcari to El Paso of 341 miles. The work includes reconstruction, now completed, of 10 miles of old line from Lewis Springs to Fairbanks, reducing maximum grades from 1.5 per cent. to 0.5 per cent., and maximum curvature from 12 deg. to 3 deg., with the exception of one 7 deg. curve unavoidable except by a long tunnel, whose construction is not now justifiable.

GRADES AND CURVES.

On the extension, the maximum grades are 0.3 per cent. west and 1.0 per cent. east, with maximum curves of 3 deg., as compared with maximum grades and curves of 1.0 per cent., 1.5 per cent. and 10 deg. on a parallel railway. From Tucson eastward, the minimum unavoidable rise is 1,730 ft. in 39 miles, making, with curve and station compensation, a practically continuous 1.0 per cent. grade. An 0.8 per cent. grade was developed on this section, but it required a long, tortuous and costly line. Principally on account of its relation to existing grades and to future practicable minimum eastbound grades on the old line forming a part of that division, the 0.8 per cent. grade was abandoned in favor of the 1.0 per cent. grade. The present eastbound grade on the old line is 1.0 per cent. When traffic justifies, it can be reduced to a minimum of 0.5 per cent. It did not appear justifiable to incur great additional expenditures for a long and crooked line having a grade materially less than a proper pusher grade for a 0.5 per cent. ruling grade.



Portion of the El Paso & Southwestern Showing New Extension from Fairbanks, Ariz., to Tucson.

The 0.3 per cent. westbound grade was chosen because, after comprehensive surveys, it proved materially less expensive in first cost than a 0.5 per cent. grade, otherwise satisfactory.

ROADBED AND TRACK.

The width of roadbed at grade varies from 20 to 30 ft., depending on depth or height and character of material, and on necessary clearances for modern construction tools. Prior to receiving bids on the work, test pits were dug along the center line of location and bidders were required to classify the material and

submit a single price per cu. yd. to cover all work, and the contract was made accordingly. The character of the material divided the work into three sections, on each of which a single price was made. Section One included miles 1 to 26, Section Two, miles 27 to 43, and Section Three, miles 44 to 65. The haul specification was retained to make the disposition of material elastic. In the concrete work, however, no haul was allowed, the price per cu. yd. in place covering everything.

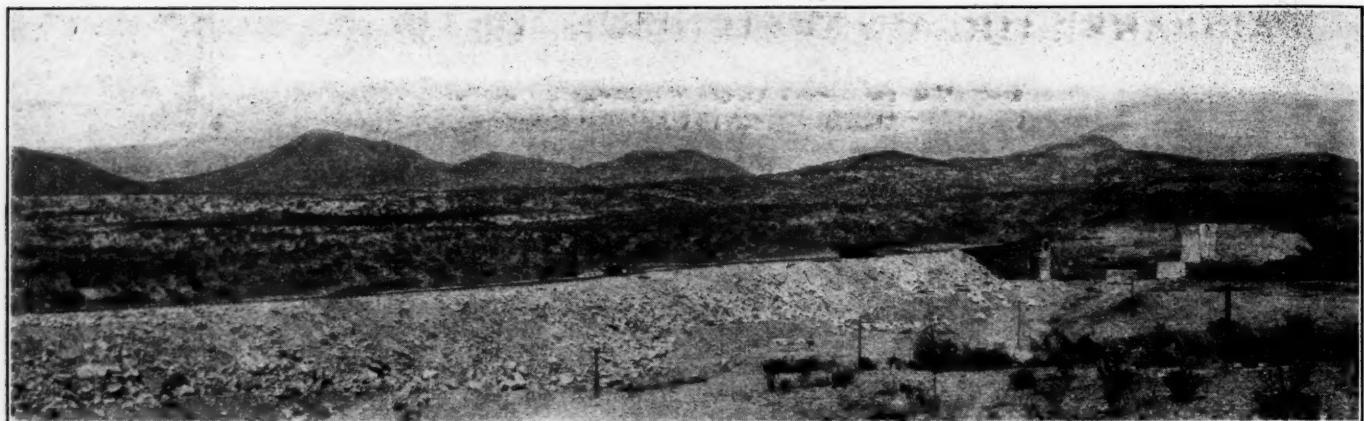
Track is laid with creosoted ties, tie plates and 85 lb. rail,



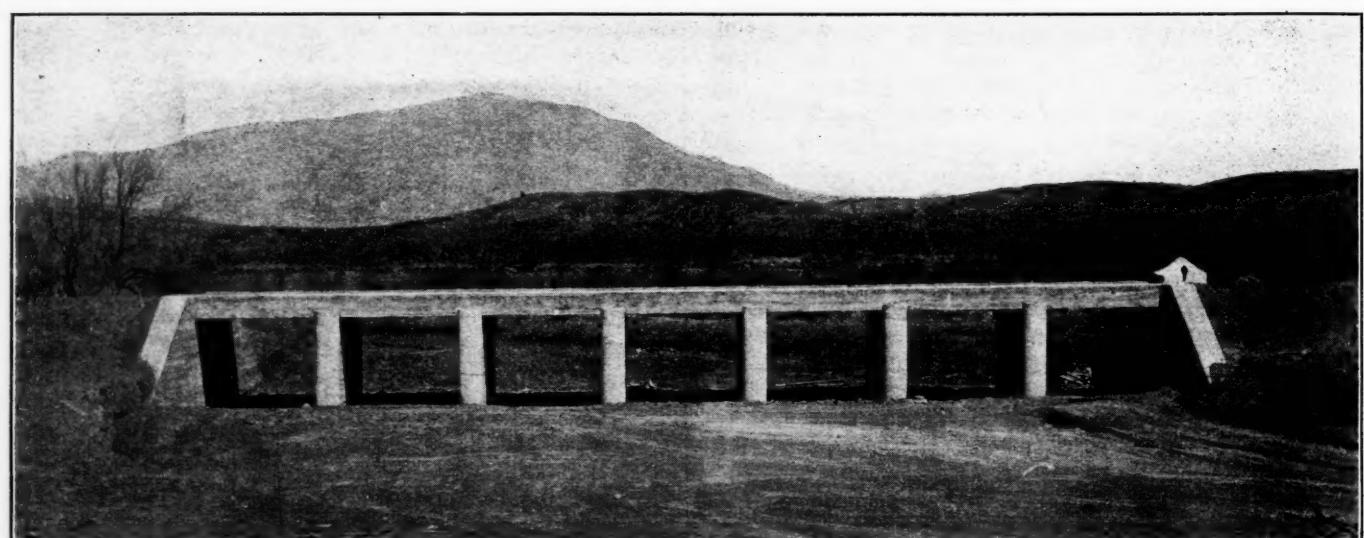
using No. 12 turnouts for main line and No. 9 for yard work. Curves are spiraled and elevated 1 1/2 in. per degree. The average cost per mile of completed roadbed and track is about \$44,000.

BRIDGES AND CULVERTS.

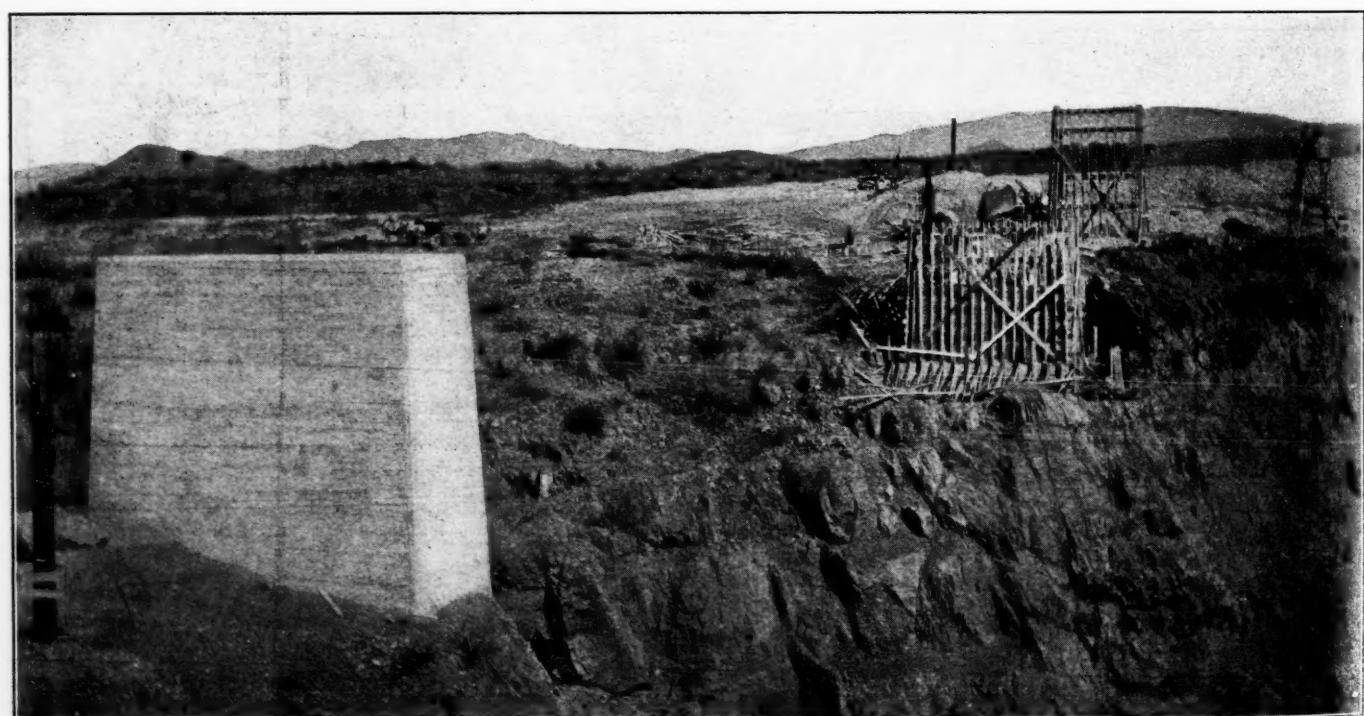
There is no wood in the roadbed construction, openings of all kinds being of steel or concrete. Each drainage area was determined by checked surveys except a few large basins whose areas were computed from the state maps. Frequently a num-



Southern Pacific Crossing and Cienega Creek Bridge.



Seven-Span Concrete Trestle; El Paso & Southwestern.



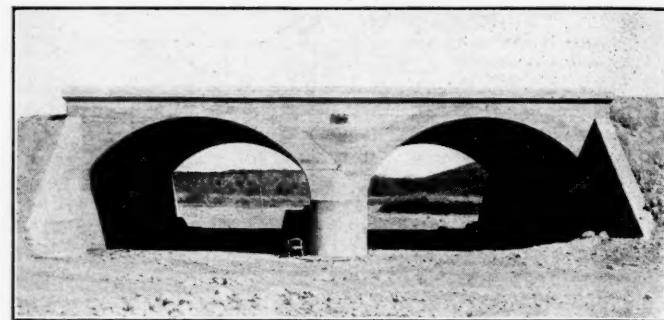
Cienega Creek and Southern Pacific Crossing.

ber of small areas were drained through one opening by suitable ditching. Special attention was given to a comprehensive drainage system throughout, a large part of the grading being ditch and dike work.

A special feature of the work is the concrete bridges, of which a score having a total length of 1,800 track ft. were built. In ten other cases this bridge was modified by substituting a rail top for the concrete slab for bridge floor. These structures are adapted to those situations where vertical height for waterway is limited. One standard of concrete arch from which many arches were built was used throughout. There are three steel bridges 300, 206 and 536 ft. long. The drawings and photographs herewith show some of the details of the structures.

BUILDINGS.

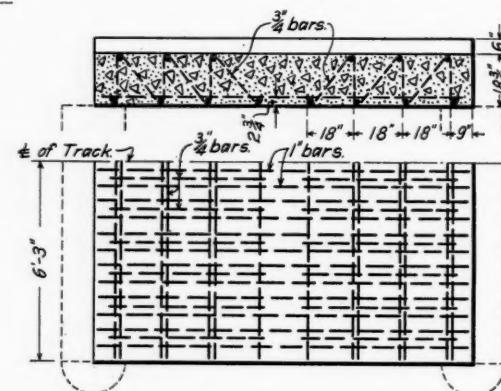
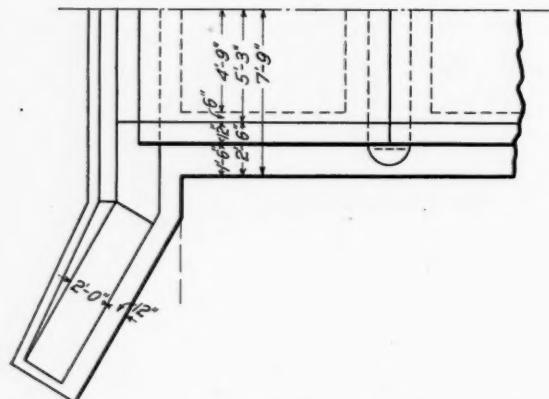
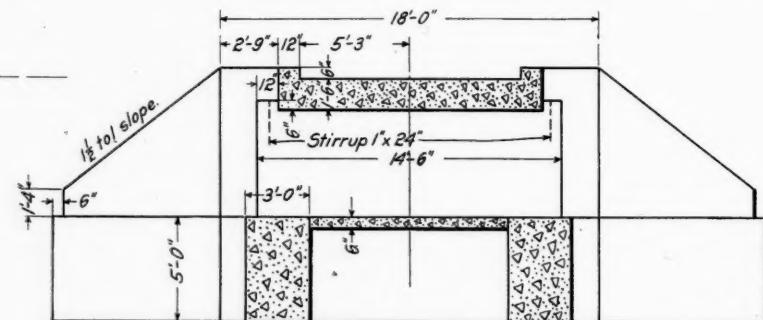
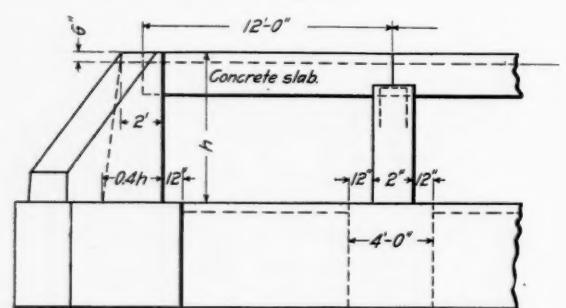
At the Tucson terminal, an attractive depot building costing \$55,000 is being erected and will be surrounded by a suitable park plat. The work there also includes a modern freight house, a reinforced concrete roundhouse, steel coaling station, etc. For



Double Thirty-Foot Arch.

water stations, steel stand pipes and 12 in. water columns are erected.

The work is under the direction of J. L. Campbell, engineer, maintenance of way, and H. J. Simmons, general manager.



Quantities.					
	2 Wing walls and abutments-cu.yds.	1 Pier and its foundation cu.yds.	1-Span paving and its curtain walls-cu.yds.	Cu.yds. of concrete.	Pounds of steel.
4	24.30	13.62	10.30	8.75	1854
6	36.10	15.71	"	"	"
8	52.15	17.80	"	"	"
10	72.29	19.88	"	"	"
12	98.08	21.96	"	"	"

Standard Reinforced Concrete Slab Floor Bridge; El Paso & Southwestern.



Southern Pacific Crossing at Mescal.

R. H. Jones, division engineer, has field charge of location and construction. The grading was done by MacArthur Brothers Company, New York; the steel bridges were fabricated by the American Bridge Company and are being erected by the Missouri Valley Bridge & Iron Company. Track is being laid by the railway company

CONNECTICUT COMMISSION REPORT ON WESTPORT DERAILMENT.

The Public Utilities Commission of Connecticut has issued its report on the derailment which occurred at Westport, on the New York, New Haven & Hartford, October 3, in which four passengers and three employees were killed and a large number were injured. The main facts of this collision have already been reported in the *Railway Age Gazette*, and we give here such new points as are brought out, together with the recommendations of the commission.

C. C. Elwell, chief engineer and inspector of the commission, reports the facts of the case. He says that an explosion occurred, probably caused by the boiler of the engine being punctured when it struck the girder of the steel bridge over the street, just west of the crossover. The concussion caused by this explosion broke windows 100 feet away. The fire which burned up the three parlor cars was started from the firebox of the engine. There was no evidence that the gas tanks under the parlor cars exploded, or that they were responsible for the burning of the cars. The estimated damage to cars, engine, track and bridge was \$70,485.

Mr. Elwell accepts the estimate of 40 to 50 miles an hour as the speed of the train passing Westport station, which is just east of the crossover. As to the action of the engineman, he says that there was apparently no effort made to check the speed until the engine was near the crossover, when an emergency application of the air brakes was made, but too late to materially lessen the speed. The drawbridge tender and the tower operator saw the danger, as did a work train conductor and a track foreman. None of these men succeeded in attracting the attention either of the engineman or the fireman. The tower man says that the fireman was sitting on his seat, looking straight ahead. The track and the equipment were all found in good condition, the only visible indication of anything wrong in the crossover being a slight spreading of the gage, amounting to about one inch in the widest place, which was the joint midway between the westerly frog and the switch beyond it. The signals and the interlocking were also found free from any imperfections. Having passed completely through the crossover, the tender probably was the first vehicle to tip over to the right, and the tender helped to pull the engine over.

A short distance beyond the crossover the engine encountered a facing point switch leading from the main track (No. 3) to a side track (No. 5). The marks on the rails "prove that the tender was careening more than the engine, due to its centrifugal force and shifting load of coal and water, and that the left-hand wheels of the forward tender trucks were not touching the rails, while the right-hand flanges were pressing hard against the north rail."

"This condition existed while they were going from the west end of the crossover to where the main rail meets the facing switch.

"At this point the width of the rail heads combined gave a wider surface for the wheel treads, and the bearing, which came on the outer part of the tread, raised the inner or flanged part of the wheel and allowed it to cross the top of both the switch and stock rails. Here the forward tender trucks were derailed, and they dropped to the ties 44 feet beyond. The 5-ft. drawbar connecting the engine to the tender made it possible for the engine to keep on the main track until it reached the side-track frog, where it lost its equilibrium, due to the

direct action of the derailed tender and aided by the centrifugal force of the engine itself."

That the engine and tender passed completely through the crossover at such high speed is held to be remarkable; and Mr. Elwell "feels assured" that had it encountered curves not exceeding 4 deg. the train would have passed through without harm. Therefore, he suggests that a No. 15 crossover would probably have averted the wreck; but he would recommend that a No. 20 be put in, as there is room enough for that length. (He says that the side track could just as well be connected at the other end, by a trailing point.) Continuing, and speaking generally, he says:

"To insure safe operation and safeguard against accidents which might occur as a result of trains taking crossovers at excessive speed, I would suggest that *all* crossovers between parallel main tracks used for trains going in the same direction, and through which trains are detoured, be constructed with No. 20 frogs; and at points where conditions will not allow crossovers of such length, pending the installation of an approved automatic train-control device, that signals be held at stop position and switches kept set for straight movement until the approaching trains have come to a full stop."

The commissioners, Richard T. Higgins, T. B. Ford and J. H. Hale, adopt the suggestions of the engineer, and they embody them in an order as follows: (1) That the railroad company be directed forthwith to remove the facing-point switch leading from track No. 3 to track No. 5, that being held to have been an important factor in causing the derailment. The switch "is inexcusably located." (2) When high speed trains are to be diverted from one track to another and the crossover is not safe for high speed, then said trains be brought to a full stop before the switches are set for the crossover movement.

As to the engineman the commission says:

"This commission can pass no order which will overcome human frailty in so far as the individual is concerned. The history of railroad operation proves that human agency, under the most favorable conditions and exercised by the most trusted and competent employees, is liable to err, and it is the duty of the railroad company to adopt such improved mechanical devices and construction as will tend to prevent the disastrous results of uncontrollable human frailty."

The commission having informed itself of the practice on the Pennsylvania Railroad and having consulted railroad civil engineers of high standing, concludes that No. 20 crossovers are safe for high speed (rate of speed not mentioned). Therefore the commission deems it equitable and in the interest of public safety and as a possible means of preventing similar accidents, to order as above.

AUSTRALIAN TRANCONTINENTAL RAILWAY.—This line will link up the railways of Western Australia with those of South Australia, and will so establish rail communication between the east and west coasts of the continent, as far north as Geraldton on the west, and Rockhampton on the east. It will be of great benefit in accelerating the mail service, not only between states, but also with Europe, and, should the need arise, in expediting the transport of troops. It is not likely that the line will become popular as a passenger route, as a considerable portion of the country traversed is dreary and monotonous. The distance between Port Augusta and Kalgoorlie is 1,100 miles, and between Sydney and Fremantle, by this vast stretch of rails, it will be 2,809 miles, the length of the different sections being: Sydney to Melbourne, 582½ miles; Melbourne to Adelaide, 482½; Adelaide to Port Augusta, 259; Port Augusta to Kalgoorlie, 1,100; Kalgoorlie to Fremantle, 385; total, 2,809. The journey from Sydney to Fremantle, traveling by rail to Adelaide, and thence by mail steamer, takes nearly a week to accomplish, but when the railway is completed it should be possible to do the trip under four days.

NATIONAL ASSOCIATION OF RAILWAY COMMISSIONERS.

Co-operation Between Federal Commission and State Commissions Urged and Fair Treatment of Railroads Advocated.

The twenty-fourth annual convention of the National Association of Railway Commissioners was held at Washington, D. C., on November 19, 20, 21 and 22. President Charles F. Staples, of the Minnesota Railroad and Warehouse Commission, presided and at the opening session an address of welcome was made by Chairman C. A. Prouty, of the Interstate Commerce Commission, in part as follows:

CHAIRMAN PROUTY'S ADDRESS.

It is significant that the trend of modern thought is to add to the authority of railroad commissions. The Supreme Court of the United States in the last year has handed down decisions which firmly establish the principle that the orders of the Interstate Commerce Commission, made in the exercise of its administrative judgment, can not be disturbed by any court; and the same doctrine will finally apply, if it does not already apply, to the state commissions; for that doctrine is embedded in the profound fact that you can not revise the action of an administrative body by judicial methods and judicial process.

All that carries with it a great load of responsibility. When the Interstate Commerce Commission makes an order, which possibly means \$1,000,000 a year to the carriers affected by it, \$20,000,000 upon a 5 per cent. basis in one single bite, you can not help feeling the load of responsibility which goes with the making of the order.

The very attitude in which a railroad commissioner stands to the parties affected by his action requires a man of extremely high ability. In the first place the commissioner is the guardian of the rights of the public. It is his business first of all to protect the public from the aggression and the improper practice of the railroad.

I am aware that is not perhaps the universal idea, and that some people dissent from that proposition. It is sometimes said that a railroad commissioner stands in the attitude of a judge whose duty it is to hear the testimony and decide upon the testimony. A railroad commission with no power except that to receive complaints, hear the evidence of parties as to these complaints, and decide upon that evidence, would be of some consequence, and would do some good, but would fall far short of the purpose of the ordinary railroad commission.

At the same time, gentlemen, it is the duty of the railroad commissioner to most scrupulously protect the railroad and to mete out to the railroad the most exact justice. It is coming to be apprehended that that is required not merely as a measure of justice to the railway, but as a measure of right in the interest of the public.

It is coming to be understood, gentlemen, that just as your servant can only properly discharge his duties when he is suitably fed, suitably clothed, and suitably housed, so the railroad can only properly discharge its duties when it receives proper treatment from the public.

It is coming to be apprehended that in the final analysis the public pays the bill, and that it pays for us as railroad commissioners to accord to the railroads just and fair treatment. That, I say, is not only demanded by justice; it is demanded by public interest.

Gentlemen, it requires ability of an extremely high order to discharge those two contradictory functions, to be at once, so to speak, an advocate and a judge. Not only that, but the railroad commissioners of today are dealing with the great economic problem which is before this country. The United States is trying an experiment which never has been successfully worked out yet in the history of the world. It is trying to build, develop, and operate its railroads by private capital under rates and regulations fixed not by the owners of that capital but by the

public. That, I say, is an experiment which has never yet been successfully worked out to the end.

We can make rates reasonable, we can remove discriminations, we can put on schedules for the running of trains; all that is easy. The question is here, Can you obtain under this system the new money which is necessary to develop our old railroad systems and to build our new railroad systems?

That is the crucial question. That question I have not got to deal with, but you younger gentlemen within the next 25 years will have it to deal with.

My home is up on the Canadian border. It is sometimes said that Canada is trying the same experiment with us. Canada has a railroad commission which is much more potential and much more effective than most commissions of the states, or than the federal commission. But Canada is not expecting apparently to be able to build its railroads from private capital under that system. Canada is building its own railroads. She owns now and has operated with indifferent success for some years one railroad a thousand miles long. She is building another railroad at an outlay of \$250,000,000, from the Atlantic to the Pacific. She is about beginning the construction of a railroad to Hudson Bay. There is hardly a railroad in the whole Dominion of Canada today, long or short, built by private capital, which has not received a subsidy and usually a subsidy in money.

Gentlemen, we may come to that same idea. We may conclude that railroads ought not to be allowed to charge rates which will induce the building of new railroads by private capital. Perhaps that ought to be the conclusion, but what I say now is that upon the manner in which you gentlemen deal with this subject of railroad regulation very intimately depends the success with which this experiment is to be worked out and the future of that question in this country of ours.

There is one other thought which necessarily comes to the front on an occasion of this sort. You are state commissioners; we are federal commissioners. In that fact many people see confusion, disaster, discord. I do not, myself, feel any apprehension of conflict or disaster. But it certainly is possible that there may be most serious confusion. Every man, I think, admits that in the commercial intercourse of the United States there should be no such thing as a state line.

The thing which led to the calling of the convention which finally gave to the United States of America a constitution, and made it a nation, was the jealousy which existed between the colonies over commercial intercourse. The one thing which was admitted all through that convention, and accepted almost as a matter of course, was that the federal government must control commerce between the states.

In the conventions which led up to the ratification of the constitution no serious question was made in but a single state over that clause which gives a federal congress control over commerce between the states and with foreign nations.

The Interstate Commerce Commission and all the activities of the Interstate Commerce Commission are based upon that clause of the constitution. It seems to me that it must finally come to pass in some way or other by additional legislation or by judicial interpretation that the Interstate Commerce Commission, the federal commission, must have power to prevent any manipulation of freight rates which will give to the citizens of one state a commercial advantage over the citizens of another state. To that extent the authority of the federal commission must finally be supreme.

Upon the other hand, there are many matters which should properly be left entirely to the state commissions. Those matters concern principally, perhaps, the building, the maintenance, the

operation of the railroads. Between these two extremes lie the great mass of our activities, yours as state commissions, ours as a federal commission.

As to these activities, each commission is entirely independent, and at the same time it is for the public interest that our activities should be harmonized. It is greatly in the public interest that this structure of rate regulation, that the rates and the practices under which the transportation by rail of this country is conducted, whether state or interstate, should be one harmonious and homogeneous whole.

This suggests the idea that there ought to be some bond of connection between the state commissions and the national commission. I have myself often considered whether it would not be possible by law to supplement the one commission with the other, but without any satisfactory results.

You can not put any restraint by the nation upon the state, nor can you put any restraint upon the nation by the state. While, however, it may not be possible by statute to do anything of value in that direction, it certainly ought to be possible by agreement to establish some bond of connection, some working arrangement between the state commissions and the national commission, which would at least permit of the free discussion of these questions—of the understanding by various state commissions of the conditions in different parts of the United States, and of the same understanding by the national commission—so that we might, when a conclusion is reached, work at least intelligently.

This convention affords in a very limited way an opportunity of that sort. As I understand it, that idea was the genesis of this convention. The early members of the Interstate Commerce Commission invited the members of the state commissions here in order that these subjects might be mutually discussed.

It is in that spirit that I stand here as the representative of the Interstate Commerce Commission this morning. We are glad to see you. We are anxious to co-operate with you. If we are not all of us present at all these meetings all the time, it is not because of want of disposition, but because it has come to pass in the pressure of business that an Interstate Commerce Commissioner is no longer master of his own time.

PRESIDENT STAPLES' ADDRESS.

President Staples, in his opening address, urged a greater degree of uniformity and harmony as between the work of the various state commissions and between the state and interstate commissions, saying that the railways can hardly be blamed for preferring a centralized regulation. "As long as you have several states studying to see which can outdo all others in radical and antagonistic regulations," he said, "the roads are justified in complaining." He thought the national association could do much to assist in uniformity of action among the state commissions, and suggested a plan of having all the states join in maintaining at Washington a common agent to represent the various commissions in all matters affecting interstate questions. He also suggested the appointment of a committee consisting of two statisticians in the employ of commissions, two railway accounting officers to be approved by the Association of American Railway Accounting Officers, and a fifth man to be recommended by the other four not connected with a railway, to determine a fair basis for dividing operating earnings by state lines and for separating terminal from carrying expenses.

COMMITTEE REPORTS.

The Committee on Railroad Taxes and Plans for Ascertaining a Fair Valuation of Railroad Properties (Clifford Thorne, of the Iowa Board of Railway Commissioners, Chairman), submitted an exhaustive report reviewing the methods and experiences in the different states that have undertaken railway appraisals, with discussions of the differences in the principles and methods of valuation adopted. The committee suggested either that the report be submitted by the succeeding

committee to the chief engineers of the various commissions for a discussion of the points involved or that the association announce its purpose of framing a set of recommendations as to rules for valuation purposes and endeavor to obtain a report that would have a very strong moral effect in influencing uniform methods. The report was referred to the new committee.

The Committee on Rates and Rate-Making (William J. Wood, of the Indiana Railway Commission, Chairman), presented no formal report, stating that the members were so widely scattered that it had been impossible to hold a meeting. Individual discussions of the subject were presented by O. P. Gothlin of the Ohio Public Service Commission; E. H. Hogeland, secretary of the Kansas Public Utilities Commission; Mr. Wood; E. H. Walker, of the Nevada Railroad Commission, and John M. Eshleman of the California Board of Railroad Commissioners. Mr. Gothlin said that the general average of railway rates in the United States can hardly be justly criticized and that the important function of regulative bodies with regard to freight rates would appear to be that of equalizing, rather than reducing rates. "There will never be adequate and effective regulation," he said, "until regulative bodies are vested with power to establish minimum as well as maximum rates, and actually exercise that power." He objected that rates are not made upon a scientific basis and argued at some length that the cost of service is the essential factor to be considered.

I. B. Mills, chairman of the Minnesota Railroad and Warehouse Commission, presented an individual report for the Committee on Legislation in which he urged that the Interstate Commerce Commission make a thorough investigation of the subject of car supply and "adopt some rules which will give more efficient service."

William F. Rhea, of the Virginia Commission, presented the report of the committee on Grade Crossings and Trespassing on Railroads, which said that trespassers can be kept off railway right of way only by penal laws vigorously enforced, but that while this is theoretically easy the complicated problems of grade crossings present give rise to differences of opinion. The report referred to the "manifest injustice" of requiring the railways to bear the entire expense of grade crossing elimination and recommended that in case any state should compel the railway companies to bear the expense alone "it should most certainly authorize it to collect an additional revenue to meet such expense," but inasmuch as the state's authority would not cover interstate business a division of the initial cost should be made and the railroad commissions would be the bodies most competent to apportion the expense. The report included a comparison of the American and British railway accident statistics with the conclusion that, taking into account all the elements of risk and volume of traffic, it is not true that the railways of this country must be judged to be worse than those of Great Britain. J. C. Sullivan, of the Ohio Commission, presented a supplementary report in which he said "it is high time the question of trespassing receive attention at the hands of the federal government, and also by the different states, looking toward the enactment of such laws, vigorously enforced, as would result in the abolishment of trespassing."

Interstate Commerce Commissioner Clark, chairman of the Committee on Uniform Classification and Simplification of Tariffs, said the committee had prepared no report. He referred to the disappointingly slow progress that has been made in the work of uniform classification thus far, which has been further delayed by the demand for the suspension of the Western Classification, and thought that the dissatisfaction with the slow progress has been partly responsible for the demand reflected in the bill passed by the last senate authorizing the Interstate Commerce Commission to formulate a uniform classification. He preferred to see the classification made by the railways rather than by a commission, but thought there must be some legislative power to require maintenance of uniformity after it has been agreed upon. He thought the plan recently

proposed by the National Industrial Traffic League, that the classification be made by a permanent committee provided and paid by the railways but not employed by individual companies was good. He thought this plan would be feasible if supplemented by legislation requiring its adoption and maintenance.

This provoked a lengthy discussion by Mr. Gothlin of Ohio and Mr. Thorne of Iowa among others, who objected strenuously to the idea that railway men have anything to say about the classification, and a resolution was passed recommending the appointment by the Interstate Commerce Commission of a body of "disinterested experts," to be paid by the federal government, "to frame and promulgate a classification of rates to apply uniformly over the United States."

The report of the Committee on Express Service and Express Rates, presented by Martin S. Decker of the New York second district commission, as chairman, consisted principally of a review of the investigation and report made by the Interstate Commerce Commission, with a recommendation that the general scheme of constructing and stating rates as set forth in that report be approved by the association, "subject to such variations in the application thereof as may be necessary to local conditions within the several states." The recommendation was adopted.

Interstate Commerce Commissioner Meyer presented a progress report for the Committee on Statistics, calling attention to the need for co-operation on the part of the various state commissions to the end of formulating some general plan of uniformity that may be laid before the association in a few years, so that a practical plan can be developed.

C. H. Hughes, of the Ohio Commission, presented the report of the Committee on Railway Capitalization, including a resolution that there should be secured by appropriate legislation full publicity in the issuance of railway securities and in addition "a reasonable measure of restraint and control thereof by public authority." Interstate Commerce Commissioner Clements discussed the report at length, urging the need of some form of security regulation, which will not, however, stop the necessary development of our transportation systems. If it can come through state control, well and good, but if not there will be need for the exercise of federal control, and he doubted if there would ever be adequate regulation by all of the 48 states. The resolution, with various substitutes, was tabled.

J. R. Wingfield, of the Virginia Commission, presented the report of the Committee on Car Service, Demurrage and Reciprocal Demurrage, which he said had been prepared for the purpose of trying to secure action by the American Railway Association that will lead to the furnishing of cars promptly when called for. The report contained a recommendation that the several states should establish reciprocal demurrage rules, reasonable as to penalties, and with a provision for relief from the penalties on reasonable grounds. It also urged an increase in the per diem rate of \$1 per day. John H. Marble, secretary of the Interstate Commerce Commission, said that the commission, in co-operation with the carriers, is concentrating its efforts on bringing about the prompt return of equipment to the owning roads, which will not solve the question, but will serve to show who is responsible for the delays and delinquencies. He expressed the opinion that there are enough cars in the country to supply the needs of the country, and that the delinquency is in the matter of proper terminals and operation.

The committee was directed to give especial attention during the ensuing year to the question of car shortage and car supply, and to report recommendations to the next meeting.

The Committee on Railway Service and Railway Accommodations presented a report reviewing the efforts of the state commissions to regulate various phases of the subject, with a discussion of the difficulties involved. The committee "could not refrain" from the suggestion that a private car at the rear end of a train is the very poorest place from which to make

an inspection of a railroad with reference to the service and accommodations afforded the traveling public.

The Committee on Safety Appliances (William Kilpatrick, secretary of the Illinois Commission, chairman), submitted in place of a report a paper by D. F. Jurgenson, engineer for the Minnesota Commission, on "Railroad Accidents, Their Causes and Remedy."

The report of the Committee on Amendment of the Act to Regulate Commerce, by C. C. McChord, of the Interstate Commerce Commission, contained but one recommendation, that the act shall be amended so as to give shippers three years from the time of the cause of action in which to present claims for the recovery of damages to the commission. The recommendation was adopted.

James E. Sague, of the New York second district commission, presented the report of the committee on Rails and Equipment, an exhaustive review of the statistics on rail failures as developed by investigations of the Interstate Commerce Commission, the American Railway Association, the American Railway Engineering Association, and various state commissions, and of the various discussions before the technical societies and in the technical press. The conclusions of the committee are:

(a) That present conditions do not require the inspection by the government of rails and equipment, or legislation concerning specifications or inspection.

(b) The most effective governmental method of securing continued improvement in the rail situation is the careful and thorough investigation of all important accidents which may be caused by rail breakage. In this connection it is desirable that each state commission should keep informed as thoroughly as may be practicable regarding the rail failures upon the lines under its supervision.

(c) The government tests of rails and ingots which were begun a few years ago should be continued and special study should be given to rail steel made by the basic open-hearth process.

Officers were elected as follows: President, O. P. Gothlin, of Ohio; first vice-president, Laurence B. Finn, of Kentucky; second vice-president, Clifford Thorne, of Iowa; secretary, W. H. Connolly, chief clerk of the Interstate Commerce Commission; assistant secretary, William Kilpatrick, secretary of the Illinois commission.

The next meeting of the association will be held in Washington on October 28, 1913.

CHILIAN RAILROAD CONSTRUCTION.—There are at present 1,290 miles of railways under construction in Chili.

RAILWAY CONSTRUCTION IN BOLIVIA.—The line which is being built from Cochabamba in central eastern Bolivia southwest to Oruro will be about 121 miles long. Rails have already been laid on the first 52 miles of the line and grading work has been completed on a further 12 miles. Oruro is located on the main line from Antofagasta, Chile, to La Paz, Bolivia.

NEW SPANISH RAILROAD.—A 99 year concession has been granted to the Compania de los Ferrocarriles del Bidasoa to build and operate a railroad from Irún on the Bay of Biscay near the French border, southeast to Elizondo, about 20 miles. The time allowed for the completion of the work is five years. The rolling stock required will include six locomotives, 11 passenger cars, and 36 freight cars.

NEW RAILROADS FOR COLOMBIA.—Construction work on the railroads from Puerto Berrios on the Magdalena river west to Medellin in the province of Antioquia, about 110 miles, is now nearing completion. Next May has been fixed as the date for inauguration of the completed line. Only a few miles remain to be finished and connection is now made between the two branches by automobile. The line will pass through Pavas, Flata, San Domingo, Barbosa, San Pedro and Capacabana.

ARBITRATION BOARD MAKES ITS REPORT.

Gives Eastern Enginemen Advances in Pay and Strongly Urges Creation of Permanent Wage Commissions.

The most important American labor dispute submitted to arbitration since the anthracite coal strike in 1902 has just been terminated by the award and report of the board of arbitration entrusted with the settlement of the controversy between fifty-two eastern roads and the 30,000 engineers in their employ.

The railroads were represented on this board by Daniel Willard, president of the Baltimore & Ohio and the engineers by P. H. Morrissey, former grand master of the Brotherhood of Railroad Trainmen. The other five members of the board, appointed by the chief justice of the Supreme Court, the United States Commissioner of Labor, and the presiding judge of the Commerce Court, were Oscar S. Straus, of New York; President Charles R. Van Hise, of Wisconsin University; Albert Shaw, editor of the *Review of Reviews*; Frederick N. Judson, of St. Louis; and Otto M. Eidlitz, former president of the Building Trades Association of New York City.

The arbitration resulted from a concerted movement begun by the Brotherhood of Locomotive Engineers in January, 1912, when the brotherhood presented to the railroads a series of requests involving uniform rates of pay, uniform classifications of service, and uniform working rules throughout the Eastern district. The railroads refused to grant the requests of the men, whereupon the brotherhood took a strike vote which indicated that over 93 per cent. of the engineers were prepared to strike upon approval by Grand Chief Warren S. Stone and his associates, as required by the brotherhood rules. Judge Martin A. Knapp, of the Commerce Court, and Dr. Charles P. Neill, Commissioner of Labor, urged the contending parties to seek an amicable settlement of the dispute and thus avoid the calamity of a strike upon the railroads of so large and important a section of the United States. Mr. Stone, on behalf of the engineers, and J. C. Stuart, chairman of the Conference Committee of Managers, on behalf of the railroads, agreed to consult with these gentlemen, and while the consultation resulted in the rejection of a proposal to mediate, the contending parties agreed to submit the matters in dispute to a Board of Arbitration. The hearings by the board have been fully reviewed in the *Railway Age Gazette*.

The problem was one of such difficulty that it became necessary before an award was made for the board to consider the principles which should obtain. The facts upon which the board reached their conclusions are so involved and numerous that they cannot be summarized. Their investigations regarding the compensation to capital, the intercorporate relations of the railroads, their present earnings, their future possible earnings, and other factors, were so complex that the board were unable to arrive at a conclusion regarding the ability of the roads to pay an increased compensation. In any case they held a reasonable wage should be paid. Disregarding, therefore, the claim of the railroads that they were unable to bear an increase, the board agreed to the principle that the engineers should be paid a fair wage.

In determining the basis of a fair wage, they took the point of view that the existing facts regarding the relation of wages of engineers to those of other classes of employees in the train service in the Eastern district and in other parts of the country should be the guiding principle. Their discussion of facts in this connection led them to the conclusion that a general increase of wages on all roads was not warranted upon the basis of the evidence presented. They also reached the conclusion that on some roads and for certain classes of service, the compensation is too small; and therefore they introduced into the award the principle of a minimum wage for the entire district in question. The more important of their awards are as follows:

THE AWARDS MADE.

A minimum wage of \$4.25 for 100 miles or less for engineers in passenger service, with an overtime rate of 50 cents per hour

with an average speed of 20 miles per hour; a minimum of \$4.75 for engineers in through freight service, per day of 100 miles or less, with overtime pro rata after ten hours; 25 cents additional per day in local freight service; and of \$4.10 per day of ten hours or less in switching service. All existing rates higher than these minima are continued in force.

In fixing the minimum wage in passenger service at \$4.25 per day, a higher minimum rate is established for the roads parties to the arbitration with the exception of a few. In awarding the minimum through freight rate of \$4.75 per day, the board establishes wages for the district that measurably approach the current minimum of roads now paying the better rates. In making the rate for local freight service 25 cents higher than the through freight service, a general increase of compensation is granted. Also the effect of the 20 mile per hour basis of computing overtime in the passenger service, the rules regarding final terminal delay, and other changes in the rules of service, are all more favorable to the engineers than existing rules on many of the roads.

In its award the board states as its belief that the engineers should be granted a fair compensation. It further states it to be probable that the great majority of the railroads in the district considered are able to pay a fair compensation. If they are not able to pay such compensation with existing rates, the report says, there is just cause for them to open again the question of an increase of rates with the Interstate Commerce Commission.

The Board of Arbitration says that while it might have been regarded as having performed its assigned task in making the award, its investigations led it to consider the broader aspects of the problem. Never in the history of the United States has there been a strike on all the railroads of a great section of the country. The present arbitration, involving as it did a concerted movement affecting 52 roads, representing a new phase of development.

IMPORTANCE OF THE CONTROVERSY.

The railroads involved operated 66,876 miles of main track in 1910, or more than one-fourth of the total mileage of American railroads. Their annual operating revenues exceed one billion dollars, or nearly forty per cent. of the total for all our railroads. They carried nearly one-half of the freight traffic of the United States, and over two-fifths of the passenger traffic. Excluding general officers, the annual pay roll of their employees amounted to \$466,000,000, and the annual compensation of the engineers alone was nearly \$38,000,000, or forty-one per cent. of the total compensation of all railroad engineers in the country.

The roads comprise nearly all of those in New England, New York, Pennsylvania, Delaware, New Jersey, Maryland, Ohio, Indiana, Michigan, and part of Illinois, practically all of the lines east of Chicago and north of the Norfolk & Western.

If an effective railroad strike had occurred in the eastern part of the United States, while this would have been disastrous to the railroads and would have resulted in great losses to the engineers, the loss to the public would have been vastly larger than that of both parties to the conflict. The board concludes that a railroad strike for the great centers of the United States can no longer be considered as a matter which primarily affects the railroad operators and employees. Continuing the board says in part:

ENORMOUS LOSS TO THE PUBLIC BY A STRIKE.

"The loss to the public would have been vastly larger than that of both parties to the conflict. Of necessity, building operations and many other lines of employment would have ceased in whole or in part; for not only are the people of the great cities dependent upon the railroads for their daily food-supply, but the great industries depend on the railroads daily for their materials, and a week's failure on the part of the railroads to deliver mate-

rials to the manufacturers would have made it necessary for many to shut down even if the owners had wished to continue them in operation. But in any case many of the owners would have been compelled to shut down their plants, inasmuch as they could not afford to continue manufacturing articles of commerce which they had no means of transporting to the places of sale.

"It thus appears if a strike of railway employees were successful in stopping traffic, its effects upon the industry of the country would be analogous to those of a general strike, simply because a great number of other industries could not continue if the railroads ceased to operate. Such a strike would have at least the partial effect of a universal strike, forced upon the public, and even the willing workers in other branches of industry. In certain general strikes of some foreign countries there have been exceptions made of certain employments necessary to human existence; but in a suspension of business through stoppage of all transportation there would be no exception.

"A somewhat analogous case in the United States to a railway strike for an entire region was the anthracite coal strike in 1902, where the stoppage of coal supply of a great commercial and manufacturing interest was deemed a calamity which compelled the intervention of the President of the United States. However, the stoppage of the anthracite coal supply was not nearly so serious as would be the stoppage of railway traffic, for bituminous coal can in an emergency in large measure take the place of anthracite; but there is nothing under modern conditions that can take the place of railroads for transportation.

"In short, a general strike on the railroads for a great section of the country would have paralyzed the industries of that section, and, even if food were obtainable, millions of laboring people would have felt the pinch of necessity. If a strike of the character indicated lasted only for a single week, the suffering would have been beyond our power of description, and if it had continued for a month, the loss, not only in property, but in life, would have been enormous. And, as usual in such cases, the disaster would have fallen most heavily upon those least able to bear it. While the rich might have felt themselves poorer because of depleted bank accounts, they would have had sufficient for the necessities of life. The middle classes would have been injured financially; but still they could have subsisted. The working classes would have suffered acutely. They would have been the ones to feel soonest, longest, and most intensely the unspeakable calamity of a general railroad strike.

"At first thought it may appear that this picture is overdrawn. But it should be remembered that never has a railroad strike affected an entire region of the United States. There have been strikes on particular railroad systems. In such cases the neighboring roads took care of the more pressing necessities of the great terminal centers, and there was no acute suffering except at minor points served exclusively by one railroad system.

THE RAILWAY STRIKE IN FRANCE.

"A general strike for the eastern territory would put the eastern states in much the same situation as France was placed a few years ago, when there was a general strike on the railroads of that country.

"On October 12, 1910, the National Federation of Railway Employees of France and the Federation of Unions of Railway Engineers and Firemen of France called a general strike on all the railways of the country. Immediately afterwards work came nearly to a standstill on the northern and western lines and the next day the strike extended to a number of other lines. In ordering this strike the men asserted it was their legal right to cease work.

"At various places during the strike there were acts of violence, 'trains were held up, signals destroyed, rails ripped from the ties, telephone and telegraph wires cut.' Many cities and towns were threatened with famine. There was immediately a large increase in the price of food. In this respect Paris fared better than some of the smaller towns, because of the prompt use of the Seine in bringing in food from the sea.

"The government appreciated at once that if this general rail-

way strike were allowed to continue, the nation would be paralyzed. Therefore upon the very day that the general strike was declared, the ministers, using their full authority, under military laws, called for the mobilization of the strikers, commanding them the following day to join the colors for three weeks' military training. The military duty to which the employees were summoned consisted in the maintenance of the railways in normal working order and in obeying the orders of their official superiors. Disobedience would entail the punishment provided for by military law. The government announced that the roads would be operated and the people of Paris would be fed.

"So effective was the action of the government that by the day following the strike a sufficient number of men had obeyed orders so that many passenger trains were running into Paris.

"The strike of the railway men was regarded by the public in general as an act of criminal violence; indeed the Ministry stated that the strike put the country in a condition of civil war. The action of the government with the prompt support of public opinion, led the railway labor organizations on the 18th to declare the strike terminated. Thus the total duration of the attempt for a general railway strike was six days. In the later discussion in Parliament the principle advocated by M. Aristide Briand and the Ministry was accepted, "that public servants must be required to discharge their duties regularly and without interruption." Indeed so imperative was it considered for the welfare of France that the railways be operated that in the discussion in the Chamber, October 28, M. Briand, declared that 'if the government had not found in the law that which enabled it to remain master of the frontiers of France, and master of its railways which are indispensable instruments of the national defense, if, in a word, the government had found it necessary to resort to illegality, it would have done so.*' This he regarded as defensible under the doctrine *Salus publica suprema lex*.

"In connection with this arbitration it should be remembered that the population in 1910 of the territory concerned in this arbitration was 37,600,000, whereas the population of France in 1911 was 39,601,509. The great congested centers of the Eastern district are much larger and more numerous than those of France. The figures in the United States as given by the census of 1910, and in France for 1911, are as follows: New York City, population 4,766,883, is larger than Paris, 2,888,110; Philadelphia, 1,549,008, is nearly three times as large as Marseilles, 550,619; Boston, 670,585, is considerably larger than Lyons, 523,796. In France the only other two cities which exceed 200,000 in population are Bordeaux, 261,678, and Lille, 217,807; whereas in the eastern part of the United States there are three other cities that exceed 500,000—Cleveland, Baltimore and Pittsburgh; two that exceed 400,000—Detroit and Buffalo; three that exceed 300,000—Cincinnati, Newark and Washington; and four that exceed 200,000—Jersey City, Indianapolis, Providence and Rochester.

"The area of the country involved in this arbitration is one and one-half times as great as that of France. The main track mileage of the Eastern district is 66,876 miles, whereas that of France is only about 35,000.

"Thus the comparison of a strike on the railroads of the Eastern district with a general railroad strike in France is justifiable from every point of view—that of the mileage of the railroads concerned, that of population as a whole, the size of the cities, and the territory involved.

RAILROAD STRIKE PRIMARILY AFFECTS THE PUBLIC.

"It is evident therefore that for a great section of the United States a railroad strike can no longer be considered as a matter which primarily affects the railroad operators and employees. It does affect them and affects them seriously; but the public is far more deeply interested. Indeed the interests of the public so far exceed those of the parties to a controversy as to render the former paramount. To this paramount interest, both the railroad operators and employees should submit. It is therefore imperative that some other way be found to settle differences between railroads and their employees than by strikes.

*The New International Year Book, 1910, pp. 269-271.

"If in the United States there were a general strike for the eastern territory comprising as we have seen two-fifths of the population and approximately half of the wealth of the country, every effort would undoubtedly be made to terminate the strike promptly and to operate the railroads, even though it became necessary for the president of the United States and the governors of the states to act in concert to the extreme limits of the laws and their reserve powers, which at time of national emergency are large. The military forces, both state and national, would undoubtedly be available if necessary to prevent any interference with the men who desired to work; but it is not easy to see how more than a fraction of the number of the engineers necessary to run the railroads could be secured promptly; therefore the result of an effective engineers' strike would be that already described.

"It appears clear, therefore, to the board that in the future, a controversy between the railroads for a great region of the United States and organized labor should be settled in some other way than by strike. If this position be sound, and the railroad operators accept it, they are manifestly helpless when labor organizations ask for higher wages and threaten that if their requests are not granted they will proceed to strike. If the above is a correct diagnosis of the situation, the board doubts whether the railroad employees fully realize their power. But if they have not realized it fully, they have realized it sufficiently to take advantage of the situation, and to vote a strike for the Eastern district.

"In the case under arbitration, the only thing that stood between a strike, sanctioned by the vote of 93.3 per cent. of the engineers, was the approval of the grand chief of the Order of the Brotherhood of Locomotive Engineers in conjunction with the committee having the matter in charge. It lay within the power of this group of men to decide whether or not a strike should take place. It is true that the power was not exercised, and that steps were taken which resulted in arbitration; but the threat of this power clearly appeared. From the viewpoint of the public it is an intolerable situation when any group of men, whether employees or employers, whether large or small, have the power to decide that a great section of the country as populous as all of France shall undergo great loss of life, unspeakable suffering and loss of property beyond the power of description through the stoppage of a necessary public service. This is a situation which we now have in this nation. It certainly is sufficiently grave to justify the board in giving most serious consideration to the solution of the problem of determining what shall be the obligations of all of those upon whom it falls to keep in continuous operation the public utilities and particularly the railroads.

PRESENT METHODS OF SETTLEMENT DEFECTIVE.

"As we have already pointed out in the body of our report, a board constituted like the present one has limitations. They have not the machinery for convenient consideration of the matters at issue. Without delays which would have appeared unreasonable—which, indeed, would have necessitated postponement of the awards far beyond the time at which it is expected to announce their findings—it would have been impossible to give study that might have led to the formation of a complete and unqualified judgment on all points. Under the circumstances, therefore, which affect the present extremely complex case, the board has made all reasonable expedition in reaching conclusions upon the facts available and the arguments presented.

"The members of the board are fully conscious of the grave importance of the case before them, whether it be measured in terms of the amount of money involved or determined by the far-reaching effects that a general railroad strike on the Eastern railroads would have upon the well-being of a large section of the country. The amount directly at issue is estimated at several millions of dollars; and indirectly much more. The amount of money involved, while it is very large, is far less important in the eyes of the board than the public interests.

The board has resolved that its award shall take effect on the first of May, 1912. By virtue of the agreement under which the parties accepted arbitration, the award will continue for one

year from that date, subject thereafter to thirty days' notice of discontinuance by either party. If the work of the board leads merely to a truce for a year, its members will feel that they have accomplished comparatively little; if, on the other hand, their work points the way to a more permanent solution of controversies between capital and labor engaged in the operation of our public utilities, they will feel that their efforts have been abundantly repaid.

"Already there is a growing realization that labor difficulties upon railroads should not be settled by war. The first great step toward the settlement of railway disputes in some other way than by strikes was made when the Erdman act, already referred to, was passed in June, 1898, having been actively supported by the railway brotherhoods. Under the provisions of this act, as amended, when there is a dispute between the employees and the railway companies which is likely to lead to a strike or which has already led to a strike, upon the application of either party it becomes the duty of the presiding judge of the United States Commerce Court and the commissioner of labor to put themselves in communication with the contending parties and use their best efforts through mediation and conciliation amicably to settle the controversy. If efforts at mediation are unsuccessful, they shall at once endeavor to bring about an arbitration of the controversy, in accordance with the provisions of the act. If this be agreed to, the arbitrators shall be three in number, one to be named by each of the parties concerned and the third by the other two within five days. When they are unable to agree upon a third arbitrator within this time, he is designated by the before-named officers of the government. Arbitration proceedings are to begin within ten days of the time of the completion of the board and its findings must be made within thirty days from the appointment of the third arbitrator. Pending the arbitration the *status quo* is maintained. No employee shall quit service within three months because of dissatisfaction with the award, nor shall an employer discharge an employee for the same reason during a like period. An award continues in force for one year after the same has gone into operation and no new arbitration upon the same subject can take place within that year. The only escape from accepting the award of the arbitrators is to appeal to the courts, which appeal must be made upon matters of law within ten days from the time the award is made.

"That the Erdman act marks a great advance in the settlement of railroad labor disputes is shown by the increased frequency with which the act has been invoked. Within a year after the passage of the act a fruitless attempt was made to utilize its provisions, but nearly eight years elapsed before another case occurred. In contrast with this, during the past five years the act has been invoked in forty-six cases, of which only eleven were arbitrations; thus the method of mediation has been much more frequently used.

"Since the law was passed there has been no case of a great railroad strike. While the merits of the Erdman act are great indeed, defects have also appeared.

"In the cases of mediation there is no attempt on the part of the mediators to make a judicial decision wholly upon the basis of equity and justice. The primary purpose is to bring the parties together and avert a strike. This is accomplished in each case by getting the parties sufficiently near together that suggestions may be made to which both agree. While whenever mediation is successful a strike is averted, these adjustments cannot always be called adjudication of a case solely upon its merits. Where the case is one of arbitration under the Erdman act the results in the above respects are usually very similar to those of mediation. The arbitrators are three in number. Each side is represented by one arbitrator. It rests therefore upon the third arbitrator to bring the other two arbitrators as nearly as possible together, and if he cannot do so he must decide between them. This is accomplished by splitting differences, and the case may be adjusted without adequate investigation of the facts involved and the award may not rest upon a basis of equity.

"This method of splitting differences is very unsatisfactory,

but it is an inevitable result of mediation or arbitration under the Erdman act. Feeling in advance that a mediation or arbitration will result in giving only a part of what they ask, the men make maximum demands regarding compensation, rules of service, etc., with the expectation that these demands will not be fully awarded. Upon the other hand, the railroad officers, appreciating the tendency of mediators and arbitrators to split differences, make only minimum concessions or none at all.

"By the above statements it is not meant to assert that the awards that have been made under the Erdman act have not been reasonably fair, but that in regard to this matter the board does not have, nor is it possible for it to obtain, adequate knowledge upon which to formulate a judgment. Cases before the Interstate Commerce Commission, no more complicated than those which have come before the mediators or arbitrators under the Erdman act, have required a year or more before an award was made; while the Erdman arbitrators are compelled to make a finding in thirty days and this notwithstanding the fact that the Interstate Commerce Commissioners have a large expert staff including a number of examiners who act for them in taking evidence.

"The Canadian Industrial Disputes act, passed in 1907, is broader than the Erdman act in that it provides not only for the settlement of disputes between railroads, but industries in general. This act is a distinct advance over the Erdman act in that no strike or lockout can be made by a party to a controversy until the difficulties have been investigated and recommendations made. For each case of arbitration a separate board is appointed. Of these, there had been 109 to the end of 1911. During the five years of existence of the law, from 1907 to 1911 inclusive, there have been only twelve industrial disputes in which strikes have not been averted or ended; and this for all of Canada for all industries. In a given case the board consists of three members appointed by the minister of labor, one from each of the parties to the controversy and the third upon the recommendation of the two members; or if they fail to agree upon a recommendation within five days, the minister is free to appoint the third member who shall be the chairman of the board. Boards are appointed upon the application of either side when a lockout or strike is likely to be declared. Thus the Canadian Industrial Disputes act has several features which are like those of the Erdman act. Some of its defects are also identical with those of the Erdman act. These are the constitution of the board of three members; only one of whom is in a non-partisan position, and the creation of a separate board for each controversy.

"It was an appreciation of these defects of the Erdman act that led to the method adopted in the appointment of this board of arbitration. The questions involved were so many and so important that it was wholly impossible for any board to make an adjudication of them in thirty days. Not only so, but the responsibility which ultimately would rest upon a third member of an Erdman arbitration board was too great to impose upon any one man. These difficulties were avoided by an agreement of the contending parties for arbitration by a board of seven members outside of the Erdman act, two of whom were to represent the railroads and the employees respectively. This left five who were in no sense representative of either side. Also there was no limit placed upon the time which the board might take for its work. Thus the responsibility of making the award on questions where all could not be brought into agreement was shared by five men. A large amount of time was taken for hearings, investigations, and findings. At the outset the board had no scientific machinery. This defect it remedied as best it could by the immediate appointment of a secretary and statisticians. The board is composed of men who have other important duties, and therefore have been able to give only a part of their time to the work of the board. Finally, the award is to take effect only for one year, and it has been felt that all possible expedition should be used even if the awards were less satisfactory than could have been made had the board been composed of men giv-

ing their entire time to its work, having the assistance of a permanent expert staff.

"The danger of a strike in the case of the public utilities has been greatly lessened by the Erdman act, but has not ceased to exist. The operation of the act is to settle a dispute rather than to adjudicate a controversy.

ERDMAN ACT DOES NOT PROTECT RIGHTS OF PUBLIC.

"But the most fundamental defect of the Erdman act is that the interests of the public are not guarded by it. In the Eastern and Western railway cases* the claims for an advance of freight tariffs were not only presented by the railroads but supported by the employees. Manifestly it is advantageous to both employers and employees to have the railroads get a sufficient income so that they will be able to meet the requests of the employees for increased compensation. For the public utilities, however, there are not only two parties to the controversy—the railroads and the employees—but a third, the public. As we have already mentioned, the railroads, one of the parties to the controversy, are subject to national and state commissions, which commissions are entrusted with the special duty of protecting the public interests. Advances in rates cannot be made without the consent of the proper commission. The railroads are not only subject to the commissions in rates, but are subject to them in regard to maintaining their service. The employees of the railroads are not subject to control through commissions; although they are influenced in common with all organizations by public opinion.

WAGE COMMISSIONS SHOULD BE ESTABLISHED.

"This disparity of status naturally suggests the creation of national and state wage commissions or labor commissions, which should exercise functions regarding labor, engaged at work in public utilities, analogous to those now exercised with regard to capital by the public service commissions already in existence. If wage commissions were established, doubtless there would have to be some degree of co-operation between commissions of the two kinds. Much of the statistical information useful to the public service commission would be valuable to the suggested wage or labor commissions. Many investigations might be carried on jointly by both. But the questions to be dealt with by each are so different that it would probably be better to have separate wage commissions or labor commissions, than to impose upon existing public service commissions, already over-burdened with important duties, the additional heavy task of adjusting labor controversies and determining what constitutes a fair wage for each class of railway employees.

"If such commissions as are suggested should be created, they must be provided with expert and statistical aid to enable them to undertake elaborate investigations of the facts bearing upon the economic condition of railway employees. When such commissions have been in existence for several years, they will have in their possession the necessary facts upon which to make awards in individual cases; or, at all events, they will have the machinery and equipment necessary for gathering the facts promptly and interpreting them accurately. There is no reason why such a commission could not proceed in the case of a labor difference with the same promptness that existing commissions exercise in the matter of railway rates.

"If the suggestion for wage commissions be adopted, many excellent features and provisions of the Erdman act and the Canadian Industrial Disputes act, and acts for conciliation and arbitration in other countries, might be embodied in the law creating them. The discussion of the details of such a law would not be in place here. But it seems to the board that the proposal made would meet the fundamental defects which have been noted in connection with the Erdman act.

"Instead of having a board for each case, which board has other duties and has wholly inadequate time in which to perform its work, there would be a continuous board, the members of which give their entire time to the adjustment of wages.

*Interstate Commerce Commission's Opinion, 1508 and 1509.

This board would have a corps of experts and statisticians; it would be allowed sufficient time to investigate a case fully. Thus the award would be upon the basis of merit instead of upon the basis of securing a settlement. If desirable, the feature of the Erdman act and Canadian Industrial Disputes act might be added, providing for one representative from each party to the controversy. If this were done, and the board consisted of five or more members, it would have a permanent majority and a shifting minority. It can be urged in favor of this feature that each representative would intimately know the facts regarding his side of the case and the point of view of those represented. A board thus constituted would have a permanent controlling center interested in securing equity, which might be assisted in its work by representatives of each of the parties to the controversy.

"Above all, the wage commissions proposed would represent the public. They would work in co-operation with the Interstate Commerce Commission and thus secure to railway employees just wages; and this without regard to whether the employees are fully organized. Under the existing situation, well organized railway labor, illustrated by engineers, firemen, conductors, trainmen, etc., receive consideration from railroads not according to the classes of labor less well organized.

"It does not follow from the above that the advance in pay to organized labor has been too frequent or too large, but merely that the question of advance for a given class of labor engaged in work upon the public utilities should not depend upon organization, but upon justice. Especially for the public utilities is it important that labor should have a just wage, and if the existing wages are not adequate they should be increased. If the increase in wages places the public utilities in a position that does not enable them to secure a fair return upon capital invested and maintain a proper reserve they should be allowed to increase their rates until they are in that position. In short, the public utilities should not impose an undue burden upon the public by paying higher wages than are reasonable, nor should the public receive services from the railroads at a rate so low that labor does not receive fair compensation and capital its fair return. How important this statement is will be understood when it is appreciated that of the gross earnings of the railroads of the United States as a whole, excluding officials, over 42 per cent. goes to labor and on the fifty-two railroads involved in this controversy, over 45 per cent.

IN NO OTHER WAY CAN JUSTICE BE SECURED TO ALL.

"If the arguments above presented are sound, there seems to be no way to obtain justice for the three parties concerned, the railway companies, the railway employees and the public, in the matter of wages except to have a permanent board which shall have the problem of adjustment and maintenance of justice for the three parties continually before them.

"It is believed that if the plan of wage commissions were adopted it is probable that railway employees would not have a just ground for a strike, and this fact combined with the power of the law and public opinion would render a strike extremely unlikely, in the future. If, notwithstanding the existence of a wage commission, the men engaged in train service struck, the question would arise as to the legal authority of the government to compel employees to remain at work. Is it unreasonable to ask men in the service of public utilities partially to surrender their liberty in the matter of quitting employment so that the nation as a whole may not suffer disproportionately?

"While the courts have uniformly recognized the principle of free contract and have always refused to compel continuance of employment on the demand of either party, several states have enacted laws prohibiting engineers from leaving their trains at any other place than at the end of their regular runs.*

"The courts have also discussed the position of employees and carriers in some of the so-called boycott cases, and it has been held that the cars must continue to move and traffic must continue to flow. Any interference with traffic, except that which is

the incidental result of the exercise of a lawful right, as the ceasing of employment for the betterment of one's own condition, is unlawful; and therefore sympathetic strikes and boycotts as in the case of railroad carriers have been condemned. That, however, does not reach the present difficulty, where the public is so dependent on the continuous service of a certain class of railroad employees that the concerted abandonment of their work would bring about a paralysis of all industrial life.

"While it is clear from the public point of view that a concerted strike of railway employees for a great region would be as intolerable as a strike of the postal clerks; on the other hand, the position of the employees is a very natural one. They feel under existing conditions that the power to strike is their only weapon of defense against employers and the only means by which they can enforce a betterment of their conditions of service. They realize, too, that the extension of this principle of concerted action, from one railroad to all the railroads in a section of the country, gives them a most effective weapon, and they are naturally loath to relinquish or impair it.

"While this is the situation under the present conditions and the railway employees feel that they cannot surrender their right to strike, if there were a wage commission which would secure them just wages, the necessity would no longer exist for the exercise of this power.

FREE CONTRACT IN RAILWAY SERVICE MUST BE RESTRICTED.

"Finally, it is the belief of the board that in the last analysis, the only solution—unless we are to rely solely upon the restraining power of public opinion—is to qualify the principle of free contract in the railroad service. A strike in the army or navy is mutiny and universally punished as such. The same principle is applied to seamen because of the public necessity involved. A strike among postal clerks, as among the teachers of our public schools, would be unthinkable. In all these cases, the employment, to borrow a legal phrase, is affected with a public use, and this of necessity qualifies the right of free concerted action which exists in private employments.

"However, if the principle be accepted that there are certain classes of service thus affected with a public interest and men who enter them are not free concerted to quit the service, then these men must be guarded in the matter of wages and conditions by public protection; and this, it is believed, can best be done through an interstate wage commission.

"It is well understood by the board that the problem for which the above plan is a suggested solution is a complex and difficult one. The suggestion, however, grows out of a profound conviction that the food and clothing of our people, the industries and the general welfare of the nation, cannot be permitted to depend upon the policies and the dictates of any particular group of men, whether employers or employees, nor upon the determination of a group of employers and employees combined. The public utilities of the nation are of such fundamental importance to the whole people that their operation must not be interrupted, and means must be worked out which will guarantee this result."

The above report is unanimously agreed to by the five members of the board appointed by the Chief Justice of the United States, the Presiding Judge of the Commerce Court and the Commissioner of Labor; it is signed by Mr. Willard, with an explanatory statement; Mr. Morrissey files a dissenting opinion.

EXPLANATORY STATEMENT BY MR. WILLARD.

Mr. Willard's statement is as follows: "Inasmuch as the findings and conclusions of the board are not unanimous, I think it is proper that I should briefly state my position as representing the railroads in this matter.

"When requested by the railroads to serve as their representative, it was understood that efforts would be made to secure, as the actual arbitrators in this case, five men of the highest character and ability. It was recognized by all that the two members named by the parties in interest, while

*Report of the Industrial Commission, vol. 5, pp. 132-135.

given, under the terms of the agreement equal standing with the other members of the board, would also necessarily occupy the position of advocates representing the parties by whom they were selected.

"I have felt from the first that it was desirable to secure, if possible, a unanimous report, and in view of the fact that the five members appointed by the chief justice and his associates—as provided by the agreement of April 30—have, after a most searching investigation, reached a unanimous conclusion, it seems to me that I ought also to sign the report in order that I may, by so doing, plainly signify its acceptance by the parties I was chosen to represent. My acceptance of the award as a whole does not signify my approval of all the findings in detail. It is intended, however, to indicate clearly that although the award is not such as the railroads had hoped for, nor is it such as they felt would be justified by a full consideration of all the facts, yet, having decided to submit their case to arbitration, and having been given ample opportunity to present the facts and arguments in support of their position, they now accept without question the conclusion which was reached by the board appointed to pass upon the matters at issue."

VIEWS OF MR. MORRISSEY IN DISSENTING OPINION.

Mr. Morrissey, for the engineers, in his dissent, expresses the belief that the award of the board will have the effect of retarding the progress of arbitration in the settlement of industrial disputes on the railroads. He contends that the award does not settle the important principles raised by the engineers and claims that it is based upon the use of statistics that are not only unreliable for the purposes for which the board used them, but that the board also erred in the application of these wage statistics.

For this reason, he says, "while the engineers will faithfully abide by the award during the period that it is to continue, at the same time it can be only temporary because its fundamental basis is so insecure."

He dissents from the majority of the board in their recommendation that wage commissions be established with power of compulsory arbitration, although he suggests that there are some important activities to which wage commissions might profitably give their attention.

A striking suggestion is made in his recommendation that hereafter arbitration boards should be so constituted that none of the parties composing them—not even representatives of the public—should have a majority of the members; that the majority should be constituted by representatives of at least two of the parties agreeing. Mr. Morrissey's dissenting report concludes with the statement:

"I wish to emphasize my dissent from that recommendation of the board which in its effect virtually means compulsory arbitration for the railroads and their employees. Regardless of any probable constitutional prohibitions which might operate against it being adopted, it is wholly impracticable. The progress toward the settlement of disputes between the railways and their employees without recourse to industrial warfare has been marked. There is nothing under present conditions to prevent its continuance. It will never be perfect, but even so it will be immeasurably better than it would be under conditions such as the board propose. The peace that would satisfy such an ideal condition as that had in mind by those making the recommendation, would be too dearly bought even if it could be attained. To insure the permanent industrial peace so much desired will require a broader statesmanship than that which would shackle the rights of a large group of our citizens."

Mr. Morrissey recognizes the importance to the engineers of the effects of such increases in wage rates and the establishing of such uniform rules of service as the board have granted. "There has been," he says, "a gain in essentials and a step forward has been taken in the standardization in engineers' rates and of conditions for the Eastern district."

THE PARCEL POST.

For forty years the American people have demanded a parcel post. Forty-three foreign countries already have a parcel post, and there is no record of any foreign country ever having discontinued such a service after having started it.

The first zone is quadrangular but not square in shape, since it is bounded on east and west by meridians of longitude which, of course, converge as they go north and diverge as they go south. All other zones are roughly circular in shape. Zone two includes all units of area outside zone one which lie either wholly or in part within a circle drawn from the center of a given unit of area, the circle to have a radius of 150 miles.

The third zone includes all the territory outside of zone two, within the radius of a circle of 300 miles, and with the same proviso that all units of area through which its boundary circle passes are a part of that zone. The fourth zone has a radius of 600 miles, the fifth zone a radius of 1,000 miles, the sixth zone a radius of 1,400 miles, the seventh zone a radius of 1,800 miles, and the eighth zone includes all units of area outside of zone seven.

The matter of units of area and of zones is somewhat complicated. But it seems much more complicated than it really is. The reasons for establishing such a system are clearly set forth by Senator Bourne, in his report on the post-office appropriation bill. There are some 60,000 post offices in the United States. With a map 10 ft. long and 10 ft. wide an effort to designate the post-offices on such map would be like printing the Lord's prayer on the head of a pin.

If the shipper has no rate book and map of his own, he will ask, at the post office, what the rate is. The postmaster or clerk will take a directory and find quickly, by means of a marginal thumb index, the state to which the package is to be sent—in this case, Virginia—find the post office, Alexandria, after which name will be a number indicating the quadrangle or unit of area in which Alexandria is located. The number on his chart will readily indicate in which zone Alexandria is in relation to New York.

As Alexandria is within 300 miles of New York it would come in the third zone. The rate for the third zone is seven cents for the first pound, and five cents for each additional pound or fraction of a pound. So a 4 lb. 5 oz. parcel will require 27 cents postage to be carried from New York to Alexandria, which sum the citizen will affix in parcel-post stamps and his parcel will be delivered within due course.

It costs now 64 cents to send four pounds of books either across the city, or across the continent. Under the parcel post law it will cost 8 cents to send the same package across the city and 48 cents to send it across the continent.

As it is at present, if a housewife in Orange, N. J., wants to order five pounds of coffee from a new York house, the express company will charge her 30 cents to deliver it, while the parcel-post service will ask her but 17 cents. If her package is eleven pounds in weight, the express rate is the same as the parcel-post rate, 35 cents, but in San Francisco she would find parcel post a little cheaper than express on eleven pounds from New York—\$1.32 as against \$1.65.

On her five-pound tea package across the continent, however, she would gain a slight advantage over the previous price, paying 60 cents to the government as against 80 to the express company.

On long hauls and small weights there is no possible semblance of competition. On short hauls and heavy weights—heavy meaning at or near the parcel post limit of eleven pounds—there is little advantage of the parcel post over express in point of price paid. On long hauls with heavy weights there is a distinct though not an enormous saving by parcel post over express.

For parcels up to and including four ounces in weight, the old rate is preserved. And when it comes to local and rural free delivery hauls, the one-pound rate of five cents simply shuts out all possible competition.—*Railroad Man's Magazine*.

MIKADO LOCOMOTIVES FOR THE BURLINGTON

Designed Especially for Long, Hard Freight Runs and Having a Tractive Effort of About Sixty Thousand Pounds.

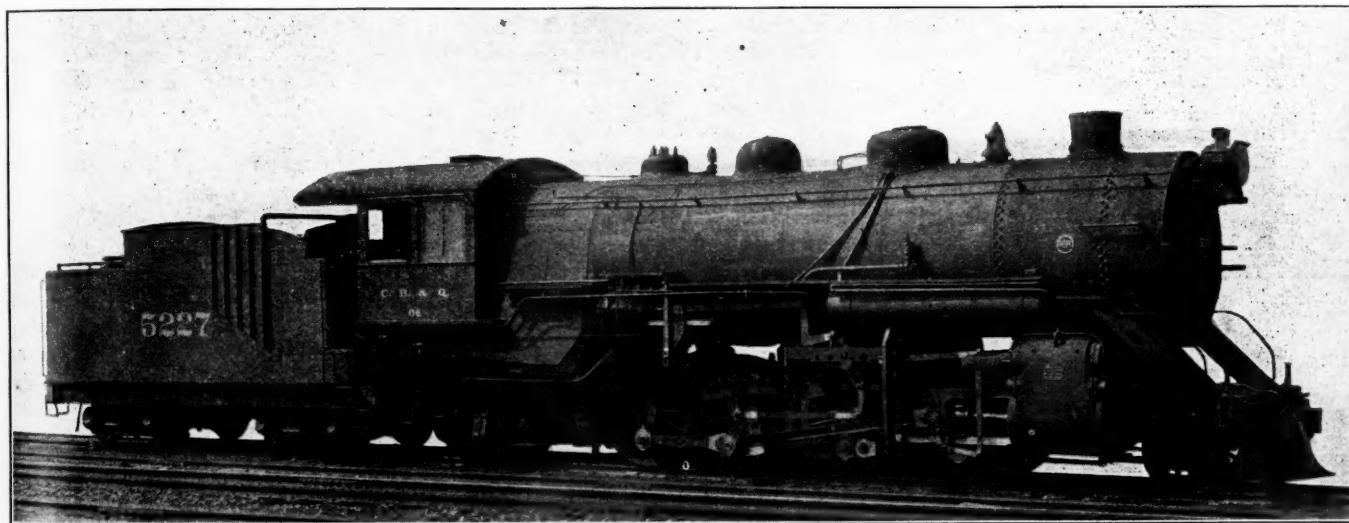
One hundred heavy Mikado locomotives, among the most powerful of their type thus far built, having a tractive effort of about 60,000 lbs., are being delivered to the Chicago, Burlington & Quincy by the Baldwin Locomotive Works. They have been specially designed for freight service with long hard runs. A comparison of the general data of these locomotives, with the Mikado locomotives built two years ago, and with an order of Santa Fe, or 2-10-2, type locomotives built in 1912, is given in the accompanying table.

Type	2-8-2	2-8-2	2-10-2
Year built	1910	1912	1912
Cylinders, diam. and stroke, in.	27 x 30	28 x 32	30 x 32
Driving wheels, diameter, in.	64	64	60
Steam pressure, lbs.	170	180	175
Grate area, sq. ft.	54.2	78	88
Heating surface, sq. ft.	3,659	4,627	5,161
Superheating surface, sq. ft.	693	961	970
Weight on drivers, lbs.	207,000	231,000	301,800
Weight, total engine, lbs.	271,000	303,400	378,700
Tractive effort, lbs.	49,500	60,000	71,500

A higher tractive effort is developed in the latest design of Mikado locomotives, in proportion to the weight on the driving wheels, than in the other two types and the equivalent heating surface is also larger in proportion to the tractive effort. This

to enable them to traverse 20 deg. curves. The main axle and main crank pins are of oil tempered steel. Castle nuts are used on all moving parts, and on the valve motion rods, guides, engine truck equalizers and spring hangers, pedestal binders and tender trucks. The tender frame is composed of 12-in. channels for the longitudinal sills, with an oak bumper at the front end and a built-up bumper at the back. The trucks are of the arch bar type with cast steel bolsters. Cast iron wheels are used under 50 of the tenders, and rolled steel wheels under the remainder. The tender is fitted with a coal pusher and has a capacity for 14 tons of coal and 9,200 gal. of water. The more important dimensions and data for these locomotives are as follows:

Tractive effort	60,000 lbs.
Weight on front truck	29,400 lbs.
Weight on driving wheels	231,000 lbs.
Weight on rear truck	43,000 lbs.
Weight of engine	303,400 lbs.
Total weight of engine and tender, about	480,000 lbs.
Wheel base, driving	16 ft. 9 in.
Wheel base, engine	35 ft. 9 in.
Wheel base, engine and tender	67 ft. 0 3/4 in.



Powerful Superheater Mikado Locomotive for the Chicago, Burlington & Quincy.

is accomplished with a slightly less weight per pair of driving wheels than is found in the Santa Fe type.

As far as possible the detail parts of the different classes of locomotives are made interchangeable. Superheaters of the Emerson type are used and the live steam passages in the cylinder saddle are cross connected by an equalizing pipe. No combustion chamber is provided, as in the Santa Fe type locomotives. To facilitate inspection the auxiliary dome is placed over an 18 1/2 in. opening in the shell. Piston valves, 14 in. in diameter, are set with a lead of 1/4 in., and are controlled by the Walschaert gear. A Ragonnet reverse mechanism is used, which is fitted with a steam connection for emergency use.

The frames are securely tied together by cast steel cross ties, and the pedestals of the second and main pairs of drivers are braced by ribbed castings, which are placed in a vertical position. The trailer truck is of the Hodges type and is similar to the trucks used on freight locomotives for the Burlington. The locomotive weighs approximately 50-lbs. per sq. ft. of total equivalent heating surface, which is said to be low for an engine of this type and capacity.

These locomotives have all tires flanged, with sufficient play

Cylinders.

Diameter and stroke	28 in. x 32 in.
Valves, balanced piston, diameter	14 in.

Wheels.

Driving, diameter	64 in.
Engine truck, front, diameter	37 1/4 in.
Engine truck, rear, diameter	42 1/2 in.
Journals, driving, main	11 in. x 12 in.
Journals, driving, others	10 in. x 12 in.
Journals, engine truck, front	6 in. x 10 in.
Journals, engine truck, rear	8 in. x 14 in.

Boiler.

Type	Straight
Diameter, at front end	88 1/2 in.
Working pressure	180 lbs.
Firebox, length and width	117 in. x 96 in.
Firebox, depth, front	86 in.
Firebox, depth, back	75 in.
Firebox, water space, front	6 in.
Firebox, water space, sides	6 in. to 4 in.
Firebox, water space, back	4 in.
Tubes, number	30-6 in.; 275-2 1/4 in.
Tubes, length	21 ft.
Heating surface, firebox	254 sq. ft.
Heating surface, tubes	4,373 sq. ft.
Heating surface, total	4,627 sq. ft.
Superheating surface	961 sq. ft.
Grate area	78 sq. ft.

THE EVOLUTION OF BUSINESS METHODS.*

"The Railroad Systems of This Country Are at the Present Time at the Disposal of the Public Essentially as a Unit."

BY FRANK TRUMBULL,
Chairman of the Chesapeake & Ohio.

In the last few years the railroad men of this country have been pretty well sterilized. They are now in such an antiseptic condition that they are generally not expected to communicate anything to other people except information. That privilege we proudly retain and we indulge the hope that there are no more diseases for us to catch. We have, what seems to many of us sometimes, a super-abundance of regulation. We might easily be reconciled to one sovereign, but it is not always easy to be resigned to having forty-nine doctors—the federal government plus forty-eight states. The evolution in this matter of regulation is a conspicuous event of this generation. A generation ago it was the habit of railroad officers to regard their vocation as a private business and they were accustomed to saying in a rather emphatic manner, "We propose to manage our own business in our own way." Such expressions are now almost obsolete. We used to talk about railroad kings. Next we talked of captains of industry, but regulation is displacing all these titles and the railroad business has become instead a profession.

We have now come to witness the fact that the railroad systems of this country are at the present time at the disposal of the public essentially as a unit. Labor questions are presented to railroad managements in larger and larger units. The arbitration this year of engineers' wages in the territory east of Chicago and north of the Ohio river marks an epoch.

Besides the labor question, we find that the Interstate Commerce law gives the shipper the right to direct the routing of his freight; it gives the commission power to fix through rates and even divisions of rates between carriers. The commission has handed down an announcement that the express traffic of this country is to be regulated by zones and that express companies are to be required to exchange business freely with each other for improvement of service; and now the commission is taking hold of questions of operation and service. For example, it is taking a very lively interest right now in the car shortages which afflict certain sections of our country and some of us are very glad of it. Railroad officials are not always as deferential to each other as they might be, but when they get telegrams from Washington, they sit up and take notice. There has been more or less discussion of the propriety of pooling freight cars. The fact is we have now a car pool without supervision because our cars must go everywhere.

We seem, as a progressive friend of mine said during the recent campaign, to "stand at Armageddon and battle for the Lord knows what." We feel sometimes like the balky mule. A man came along and threw a shovelful of dust down the mule's throat; the mule responded by starting immediately, whereupon the man said: "All you need to do with a mule is to change its line of thought." Now, none of us wants a shovelful of dust in these matters, but neither ought we to object to swallowing facts, and at this Thanksgiving period perhaps we ought to count some of our blessings; what our gains are as well as our losses. These old conditions of special privilege tended to make the rich relatively richer and that, of course, was intolerable. It is a blessing for all of us that such methods have been abolished. Everybody is more honest and pleased to find the satisfaction of looking one's neighbor in the face; to put all the cards on the table; and this gain to our commonwealth can never be measured in dollars and cents. There is really more light and less heat. Publicity is the order of the day and we have found over

again that fresh air and light cure many of the ills that afflict us.

Now, if we use a telescope, what do we see? The gross earnings of American railroads increased 37 per cent. in the year 1910 over the year 1905, and net earnings increased 31 per cent. Gross earnings increased 92 per cent. in 1910 over 1900, and net earnings increased 78 per cent. Surely this, at least, proves that we have a growing country. I have said that the net earnings were about the same in 1912 as in 1907, but in the year 1908 net earnings dropped \$100,000,000 as compared with the year before, because of the 1907 panic. The business of this country has been dammed up. For five years it has been on a hand-to-mouth basis, but the railroads are back to the 1907 basis and more. We now have the most bountiful crops this continent has ever seen, and in the first three months of this fiscal year (before the crops were moved) the net earnings over taxes of our railroads have increased over \$23,000,000; that is to say, 9 per cent. All signs point to an active business. Two hundred thousand freight cars are being purchased this year, and that alone is helping business—to say nothing of locomotives, passenger equipment, rails and other supplies. Some of you, doubtless, think that business may be slow until the tariff is adjusted, but no railroad man with whom I have talked thinks that it is a wild estimate to predict an increase of 20 per cent. in the gross earnings of United States railroads in the next three years; that is to say 6½ per cent. per annum. Our gross earnings the last fiscal year were \$2,940,000,000. A 20 per cent. increase would be \$588,000,000. The question is what can we save out of \$588,000,000, but I am sure that there will be enough net to support a large amount of additional securities.

The problem, of course, is to sell the bonds or stocks first so as to provide the facilities to realize the net profit railroads ought to have and must have to properly serve the country. We must trust each other, and we must get the people to trust us. This country would never have been what it is if its bankers had been devoid of imagination. It is as true now as it was three thousand years ago that "if there be no vision, the people perish." It is all a question of credit. If we all pull together, our credit, as a whole, will be good. We shall not establish it by talking starvation. In all these large matters, public opinion is, after all, the determining factor. We must commend ourselves to the public. This is really not a new idea for our declaration of independence—136 years ago—admitted the necessity of a decent regard for the opinions of mankind. The Interstate Commerce Commission can do much, but in the long run it can only do what the public will endorse.

Apparently now we are confronted with a new phase of this evolution of business. There is a demand for regulation and control, not only of the railroads, but of the general business of the country. Railroads are now listed as domestic stock instead of as wild animals and the regulation of railroads is pointed to as an example of what may and what ought to be done for and with and to other corporations. One party in the recent campaign had a definite platform for establishing at Washington supervision, regulation and control of the business of the country so as to safeguard the interests of the producer, the consumer and the wage worker—a rather large order for a single bureau in Washington, considering that the producer, the consumer and the wage worker comprise everybody.

Regulation is in the air. Many are asking, what form shall it take? Many who have not been accustomed to it, admit, in a vague way, that some method of regulation would be beneficial, but they have not thought it out. Why not first

* An address before the Association of Investment Bankers.

clarify our definitions? Do we want regulation or shall we start with supervision? Should we not have knowledge first? Do we not all know that regulation will not satisfy a large part of the public, if it does not deal with prices, and that if prices are to be regulated, of course wages and profits must be? On the other hand, if we want to start with supervision only, we must, at least, favor publicity. If publicity ought to be defined, why not help define it?

The evolution I have talked of this evening has been a painful process, as every evolutionary process always is, and must be. It is not new conditions, but getting adjusted to new conditions, that makes men apprehensive. I have said that the railroad systems of this country are, in many respects, essentially a unit. It is also true that the railroads and the other industrials of this country are a unit for weal or for woe. They are so linked together that we cannot injure one without injuring the other. The motto which the labor unions have applied, in a restricted sense, is applicable to everybody: "An injury to one is an injury to all."

The anti-trust law has been much abused, but, my friends, have you noticed that it is from month to month being clarified and that there is less and less talk against it? Why should we be stampeded by the disagreeable events of two or three years only? Nearly three hundred thousand corporations now report to Washington under the federal income tax law, but in twenty-two years only 132 suits have been brought by the federal government under the anti-trust law. Now, if the government at Washington has done its duty, clearly the bulk of the business of this country is within the law. Nor is that all. All of us know that hundreds, perhaps thousands, of combinations would have been formed if it had not been for the anti-trust law and for the prosecutions under it. If there were no anti-trust law, the movement towards state socialism would be much more rapid than it is. We must not forget that the socialist considers the great combiner the best agent and accelerator of his theories. The anti-trust law prohibits only two things, but things which, if I at all understand the temper of the American people, they are still determined to avoid, to wit: private monopoly and restraint of trade. Many say that modern business requires great combinations. The anti-trust law declares a policy for this country which does not assent to that proposition, and the fact is there is a point beyond which combinations are not economical and are a menace; when I say menace, I mean not only a menace to the individual, but a menace to our form of government; for if combinations are to be multiplied, we must admit the necessity of controlling them, and then the question will promptly arise whether the government at Washington is to be determined by money or by intelligence or by ignorance and prejudice. There is nothing in the anti-trust law to prevent your enlarging a single business indefinitely by fair methods. If you think that promotion of new enterprises is halted by it, at least it may be said that existing enterprises will, in the interval, be protected from new competition.

What shall we do about all these things? Shall we say "After us the deluge and the devil take the hindmost?" I think not. We hear a great deal about industrial democracy and about giving workmen a partial ownership in the tools of industry. Shall I make a definite suggestion? Well, one thing that will help bridge over the problem will be to peopleize our industries; that is, to make a wider and wider distribution of securities. There are four billions of dollars in the savings banks of this country. Think of the effect on legislation and on the attitude of the people in all these matters if even one-quarter of that amount could be directly in the hands of individuals in the shape of investments. Why do we go, hat in hand, to the peasants of France to get money for our railroads? If the savings bank depositors of America are satisfied with two or three per cent., can you not satisfy them with five or six per cent? There must, of course, be integrity of accounts which may mean governmental supervision of accounts of industrials as for the railroads; and there must be as few failures as

possible. In England the accounts of every corporation must be certified by a chartered accountant. We must look five or ten or twenty years ahead, not simply at the moment. If we are to commend ourselves to the public, we must take the public more and more into our confidence.

SMOKE PROBLEM IN CHICAGO.*

By OSBORN MONNETT,
Chief Smoke Inspector of Chicago.

The Chicago Smoke Department has adopted a policy of educating the public in the methods of preventing smoke; plant owners, engineers and firemen are shown the proper method of constructing furnaces for various kinds of service and are also instructed in the best manner of handling the equipment they have. For this educational work the department has a number of engineers whose duty it is to work with the owners and operators of plants, investigating and advising means which from experience of the department teaches them to be best under the circumstances.

The problem in each plant is carefully investigated and thoroughly considered by the engineers, after which recommendations and suggestions are made to the owner as to the method of handling his plant or as to the reconstruction work necessary in order to operate within the smoke ordinance. Sometimes entire boiler plants are rebuilt in order to stop smoke, and very often furnaces are reconstructed throughout. It sometimes happens that after a new plant is put in operation it smokes, and the operating crew finds it difficult to run without making objectionable smoke. The department gives such a plant special attention and stays on the job until the cause of the trouble is definitely known and changes have been made that will rectify matters.

It is the aim of the department to get automatic stokers in all plants that are large enough to warrant the expenditure. As long as furnaces are hand-fired there will be trouble in keeping the smoke down, because so much depends upon the personal element. It has been the experience of the department that practically every stoker on the market today may be applied under circumstances which will allow it to run satisfactorily from the smoke standpoint; however, it is a problem to know whether a plant is surrounded by all the proper safeguards and to be certain of the results that will be had when the furnaces are put in operation. There is no standard set of conditions which will meet every case. *Proper operation is the most important thing of all and in many cases the most difficult thing to obtain.*

CALCULATIONS FOR SMOKE DENSITY.

According to the technical interpretation, the Ringlemann chart reading consists in observing the smoke density of a stack every 15 seconds for the period under observation; in this way a very close record of the behavior of the stack is obtained. The method of figuring the data is as follows: The number of observations of Nos. 1, 2, 3, 4 and 5 smoke are tabulated and reduced to smoke units as follows:

70 units of No. 1 smoke.....	=	70
34 units of No. 2 smoke.....	=	68
100 units of No. 3 smoke.....	=	300
29 units of No. 4 smoke.....	=	116
146 units of No. 5 smoke.....	=	730
Total		1,284

As the readings were taken every 15 seconds for a period of 170 minutes, this figure, 1,284, divided by 4 gives the smoke units for the period under observation, and as one smoke unit represents 20 per cent. density, the calculation for density would be $\frac{321 \times .20 \times 100}{170} = 37.7$.

The Ringlemann chart reading shows not only the per cent.

*Abstract of paper presented before the Western Society of Engineers, November 4, 1912.

density of the smoke for the day, which is in fact the measure of the desirability or undesirability of the stack, but it also gives the number of violations per hour of the stack, if any. Readings of this nature taken in the past 6 months have been classified according to industries and charted for closer study. A standard of 2 per cent. density for a day's observation was taken to represent good performance.

USE OF THE CHARTS.

The method of making use of this tabulated information is as follows: In working on, for instance, the clubs of the city, a copy of the chart is shown to the offender at the foot of the list and an appeal to his civic pride is made, which in most cases is sufficient to get satisfactory action. In approaching an industry, such as a piano factory for instance, which is making too much smoke, the department first picks out a factory in the same line of business, which has as nearly as possible the same boiler equipment, and lays the facts before the offending corporation, in effect, for instance, that whereas their piano factory is running, say, 18 per cent. or 19 per cent. smoke density on a day's observation, the piano factory across the street, a competitor of theirs, is running inside of 0.5 of 1 per cent. density, and that from the smoke department's standpoint there is no reason why their piano factory cannot be run as clean as another piano factory, provided they will put their plant in proper shape. This argument seldom fails to get the desired results without suit or threat of suit.

METHOD OF HANDLING RAILROAD DATA.

The same plan of using the good performance of the company to spur others to better work is being pursued in the railroad campaign. In the fall of 1910 a series of railroad readings were made showing the smoke conditions at the various railroad centers, and a table showing the smoke standing of the railroads was prepared. In the fall of 1911 a similar set of figures was prepared. It soon became evident that there was an intense rivalry among the various railroads in their efforts to the top of the list. This has been taken advantage of with good effect by the smoke department. Herewith is presented a summary of a series of railroad smoke readings for the summer of 1912, which are the first summer readings that have been taken by the department. It has long been realized that railroad smoke appeared heavier in summer than during the cold weather, but it was not known how much the weather affected smoke densities. Taking the smoke readings of the fall of 1911 as a criterion, and assuming the same effort on the part of the railroads to keep down smoke, the summer readings of 1912 show that there is approximately 100 per cent. difference in the smoke density of railroad smoke in the summer over the winter months.

It has been found that the more information the department can convey to the railroads the better the results. For instance, by giving the smoke densities for the various locations, a railroad may find that its per cent. density at a certain point is very satisfactory, whereas at another railroad center it is not at all satisfactory. By analyzing these smoke density reports for the various localities, a railroad is enabled to determine the points where its engines need special attention and to discover why it is that they cannot have a uniform smoke density throughout the city. Theoretically, if one railroad is inside of 5 per cent. density there is no reason why all the rest of them should not be, but practically it does not seem to work out in this way; there is a difference in organization, difference in methods, difference in service performed, and difference in condition of equipment, which seems to have an immense amount of influence on the smoke densities of the various roads. However, it would seem logical to suppose that if uniform methods of enforcing the anti-smoke rules were adopted by all the roads, and if standard equipment in various classes of service was provided, that uniform results

could be obtained throughout the city and the smoke kept down to the commercial minimum.

SMOKE DENSITIES AT VARIOUS LOCATIONS IN CHICAGO.

Date.	Location.	Percentage.
June 4.	South End Union Station.	7.94
June 5.	La Salle Station	10.59
June 13.	C. & N. W. Passenger Terminal	7.15
June 25.	Englewood Union Station	17.43
July 1.	Ada street, Pan Handle, St. P. & N. W. Ry.	13.73
July 2.	Sixteenth and La Salle streets	11.33
July 3.	Seventeenth street and C. & W. I. Railroad	12.34
July 8.	Fifteenth street and C. & W. I. Railroad	14.31
July 17.	Michigan avenue and C. & W. I. Ry., Kensington	26.19
July 19.	Kedzie avenue and C. & N. W. Ry.	11.73
July 23.	Sixty-third street and I. C. Railroad	7.86
July 25.	Forty-ninth street and Kedzie avenue	14.31
July 31.	Forty-first street and Lake avenue	11.54
Aug. 14.	Seventy-ninth street and C. & W. I. & R. I. R.	18.06
Aug. 22.	Western avenue and B. & O. C. T. & C. & N. W. Ry.	16.81
Aug. 23.	Western avenue and C. B. & Q. R. R.	4.96
Aug. 30.	Forty-seventh street and C. & W. I. R. R.	13.42
Sept. 3.	Sixteenth street and Stewart avenue	7.09
Sept. 4.	Van Buren street and I. C. R. R.	5.26
Sept. 6.	Forty-sixth avenue and Twenty-second street	15.04
Sept. 25.	Twenty-sixth street and Campbell avenue	15.93
Sept. 26.	C. & A. and Pan Handle Crossing	14.05
Sept. 27.	Root street and C. R. I. & P. R. R.	7.48
Sept. 30.	Eighty-sixth street and Superior avenue, Rock Island Junction, South Chicago	23.39

SMOKE STANDING OF THE VARIOUS RAILROADS IN THE SUMMER OF 1912.

Railroad.	No. of Observations.	Engine Minutes.	Smoke Units.	Percent. Density.	Standing 1911.
1. C. B. & Q.	329	1,089	191	3.51	1
2. A. T. & S. Fe.	66	122	28	4.75	8
3. C. G. W.	40	75	21	5.6	3
4. Illinois Central	409	919	321	6.98	11
5. Michigan Central	45	98	43	8.98	15
6. C. M. & St. P.	112	225	105	9.36	2
7. N. Y. C. & St. L.	57	136	70	10.3	20
8. B. & O. C. T.	58	126	67	10.63	7
9. L. S. & M. S.	197	606	355	11.55	10
10. C. & A.	74	191	111	11.62	25
11. C. I. & L.	42	89	54	12.15	18
12. C. & W. I.	36	74	45	12.16	21
13. C. I. & S.	38	156	95	12.18	22
14. C. & E. I.	136	420	262	12.47	24
15. C. R. I. & P.	291	792	509	12.85	14
16. C. & N. W.	580	1,384	898	12.94	5
17. Grand Trunk	168	312	204	13.08	17
18. Pere Marquette	17	44	29	13.18	12
19. Pennsylvania	489	1,086	782	14.4	9
20. Wabash	128	274	204	14.89	16
21. C. R. & I.	24	84	63	15	28
22. Belt Ry.	238	556	458	16.87	13
23. Illinois Northern	57	164	147	17.92	29
24. Wisconsin Central	24	44	40	18.18	4
25. B. & O.	85	217	227	20.92	6
26. Mfrs. Junction	8	13	14	21.54	Not Listed
27. Erie	87	193	210	21.76	19
28. Chicago Junction	14	33	41	24.84	26
29. E. J. & E.	38	180	282	31	30
30. Unidentified	2	5	8	32	23
31. Chi. Short Line	1	4	8	40	Not Listed
Total	3,890	9,721	5,892	12.12	

LONGITUDINAL RAILWAY, CHILE.—A section of about 323 miles of the Longitudinal Railway, Chile, has now been opened to traffic. This section runs through the mineral belt and nitrate zones of northern Chile. It is believed that before the end of the year railway connection will be established between all the ports of the provinces of Antofagasta and Tarapaca.

RAILROAD CONSTRUCTION IN PERU.—Construction work on the Ucayali Railway was started on September 21, at Goyllarisquisga. This road will open for commercial purposes a large section of the country lying between the Andes and Ucayali river branch of the Amazon system.

BRITISH RAILWAY WAGES.—The British board of trade has made an inquiry into earnings and hours of labor of the working people of the United Kingdom, a report of which was published this year. For railway employees it took reports of the actual payments made during the last week of October, 1907, and it should be said at once that wages have been advanced since that time. In nearly all cases the wages earned and paid were greater than the regular rate of wages, because of extra payments for overtime and Sunday work. The highest weekly wages paid were \$11.17 to enginemen, whose regular weekly pay was \$9.83. Firemen got \$6.67, signalmen \$6.69, passenger guards \$7.12, freight guards \$7.58, foremen \$8.70, and mechanics in shops \$7.70. Apprentices and other lads employed at stations received an average of \$2.82 per week. There were 35,536 of these and 365,901 adult employees.

CO-OPERATION THE REMEDY FOR CAR SHORTAGES.*

It takes but a casual examination of the facts as they exist to determine that many shippers expect from the railroads extra service, such as the occupancy of tracks, detention of cars, and additional switching, which would be uncalled for if a proper provision had been made for storage and proper facilities for loading and unloading cars.

In the examinations made by our commission during the last two years in reference to both the shortage of coal cars and grain cars, it was a very frequent occurrence, when we sent our inspector or examiner into the cities and villages throughout the state where they were demanding more cars, to find freight cars loaded with coal that had been held long beyond the time allowed by law by the consignee to enable him to unload his coal and deliver to his customers, instead of at once unloading into his bins, and thus relieving the car for further service. And during such inspections it was not an uncommon thing, but a very frequent occurrence, to find cars loaded with furniture and other manufactured articles from the cities, held far beyond the time allowed, and demurrage paid simply that the consignee might unload the furniture or freight, whatever it might be, at the consignee's convenience and without any extra expense or charge.

The commission upon several occasions ordered cars unloaded that they might be loaded at once with grain in the same village where they had been for several days before our inspector arrived.

A few cars of coal, a few cars of grain, as well as a few cars of other freight held in towns throughout the state, will create very rapidly a car shortage. It is equally true that in such inspections made by our commission we found cars upon the side tracks that had been shipped and held from 5 to 25 days which should have reached their destination long before and should have been unloaded and made several other trips. These may appear to be small matters, and yet a few loaded cars on each side track, that should have reached their destination and been unloaded, not only bring on a car shortage, but are a just foundation for a complaint, both by the shipper of the article, whatever it may be, and the receiver thereof, both of them being dissatisfied and unable to understand why such things occur.

These are the conditions that account in a great measure for the low average mileage which carriers get from their freight cars, and which materially decrease the efficiency of the service. Why should carriers be expected to provide storage for the shipper in such a manner, and why should the shipper be delayed by his cars standing out upon the side tracks instead of being moved? There is but one answer to either of these questions—they should not in either case occur.

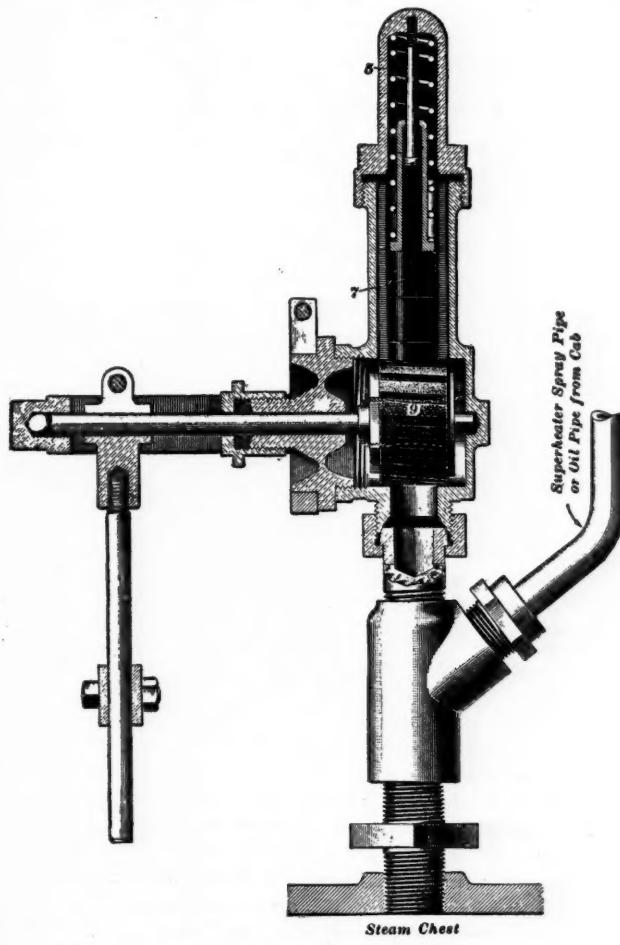
Opinions of railroads by the public are formed almost entirely by the impressions made by contact with the officials and employees of the road. Whatever real basis, if any, there is for finding fault with the operations of a railroad or any other business enterprise, will be found in the unfaithfulness of the individual men composing that particular company. The character of a railroad is determined by the men who represent it, and the character of any other business enterprise is judged the same way.

In the very nature of things, the interests of the railroad and of all of its patrons are and must be identical. One cannot prosper without the other. The man who would sow dissension between them and embarrass their co-operation by misunderstanding, friction or antagonism or seeks to make them believe that their interests are not identical but opposite, is a public enemy. And while oftentimes the railroads of the country have been at the mercy of such persons, the public should not

tolerate such people. It should always be kept in mind that a railroad will destroy itself unless it fosters transportation; unless it adopts a policy toward its patrons that will encourage and increase permanently the movement of business, it cannot survive. On the other hand, the people will become sufferers if by any hostile action or unreasonable demands they limit the power of the railroads to serve them.

GRAPHITE LUBRICATOR FOR SUPER-HEATER LOCOMOTIVES.

In discussing Gilbert E. Ryder's paper on "The Locomotive Superheater and Some of Its Effects on the Cost of Railway Operation," which was read at the November meeting of the New York Railroad Club, M. C. M. Hatch, superintendent of fuel service of the Delaware, Lackawanna & Western, called attention to the fact that that road had installed a graphite lubricator on some of its superheater locomotives with good results. This device, which is being developed by The National Graphite Lubricator Company, of Scranton, Pa., is shown in the accom-



National Graphite Lubricator.

panying illustration. The graphite blocks, which are designated by the figure 7 in the illustration, are furnished in pieces 1 in. in diameter and 1 in. long, and are forced against the cutter or grinder 9 by the spring 5. As the graphite is ground off in fine particles it falls to the steam chest through the connections shown. One of the small blocks of graphite, with the addition of a small amount of oil furnished from the lubricator in the cab, is said to furnish lubrication for from 75 to 150 miles. The grinding wheel is operated by the connections shown, which receive their motion from the valve stem. The amount of graphite which is fed to the valves and cylinders is therefore in proportion to the speed of the locomotive.

*An extract from an address at the annual dinner of the National Industrial Traffic League, at Chicago, on November 14, 1912, by Orville F. Berry, chairman of the Railroad and Warehouse Commission of Illinois.

General News.

The firemen's committee, appointed to confer with the managers of the eastern roads about wages, will be in New York December 2, and the conference will probably be held early in the week.

The strike of clerks on the Canadian Pacific has proved a failure. At some places the employees, in offering to return to their positions, assert that they were led astray by their brotherhood leaders.

The Toronto, Hamilton & Buffalo has increased the pay of its telegraphers 10 per cent, to take effect on January 1, next. Under the new rates these operators will receive salaries equal to those in vogue on the Canadian Pacific.

The large freight houses of the Canadian Pacific at Prescott, Ont., were destroyed by fire November 21, together with nine loaded freight cars and the customs office. In the building were 200 tons of coal.

The Engineers' Club of Lincoln, Neb., was organized recently with 56 charter members. J. N. Bridgman, of the University of Nebraska, is president, and C. H. Gerber, principal assistant engineer of the physical valuation department of the Nebraska Railway Commission, is secretary.

The Atchison, Topeka & Santa Fe has notified the corporation commission of Arizona that it has taken proper measures to comply with the new law of that state requiring high-power headlights on locomotives, but that there will be long delay because the manufacturers are unable to deliver the electric headlights which have been ordered.

According to newspaper reports, officers of the St. Louis, Iron Mountain & Southern recently inaugurated a new kind of surprise test. The superintendent, the trainmaster and the general yardmaster appeared suddenly in the yards at Du Po, Ill., and ordered a breath-smelling test for employees. Those who were found to have been drinking liquor were ordered off duty.

An item in our issue of November 8, page 896, said that the Southern Pacific was being prosecuted by the government on 31 charges of violation of the law regulating the length of time which animals may be kept in cars without food or water. An officer of the road advises that of these 31 charges, 21 were dismissed for lack of evidence and 6 were decided in favor of the road; on two the jury disagreed, and a conviction was secured by the government in only two cases.

The Chicago & Alton held the first of a series of monthly dinners for its officers and employees at the Grand Pacific Hotel, Chicago, on the evening of November 20. President B. A. Worthington spoke on the subject "Success: Industry Plus Team Work Equals Success." The purpose of the dinners is to promote harmony, good-fellowship and team work, to get the men acquainted with the officers, and to bring together members of the various departments who do not meet in the regular course of their work.

At Pueblo, Col., November 24, the Denver & Rio Grande and the Colorado & Southern were indicted by the federal grand jury on charges of granting rebates and with issuing free transportation (intrastate) to influence interstate shipments. The Colorado Fuel and Iron Company, Victor American Fuel Company, Great Western Sugar Company, Portland Cement Company and United States Portland Cement Company are indicted, charged with accepting rebates and free transportation.

The Grand Trunk, which has used telephones for train despatching on a few circuits for some time, has decided to install telephones for this purpose throughout its main line from Montreal to Chicago. There will be five circuits: Montreal to Brockville, 125 miles; Brockville to Toronto, 210 miles; Toronto to Sarnia, 159 miles; Port Huron to Battle Creek, 160 miles; and Battle Creek to Chicago, 172 miles. There will be about 155 way stations. The apparatus has been ordered from the Northern Electric & Manufacturing Company, Montreal.

Following the order of the Connecticut Public Utilities Commission, in the case of the Westport derailment, which is noted on another page, the New York, New Haven & Hartford is

sued an order to install No. 20 crossovers, at all points where practicable, on the four-track lines of the company, not only in Connecticut, but in Massachusetts, Rhode Island and New York also; and a rule has been adopted that all trains scheduled at more than 15 miles an hour shall come to a full stop before passing through crossovers which are not safe for speeds higher than that.

The Illinois Central has announced that the carrying of passengers on a number of its freight trains has been prohibited. A statement issued by the company says: "Experience shows that it is dangerous to the passenger whenever he rides on a freight train. During the year ending June 30, 1912, six passengers were killed while riding on freight trains. It will be seen that the number of deaths of persons who rode on freight trains is out of all proportion to the number of passengers carried on such trains. The number of passengers transported on freight trains is infinitesimal as compared with the number of passengers carried on regular passenger trains."

The railroad commission of Louisiana has asked the railroads to furnish full data concerning the use of the block system, preparatory to giving a public hearing on the subject. The commission asks not only for mileage of road signaled and other particulars, but also for cost of installation, of maintenance and operation; and a statement of any accidents which may have occurred in the state of Louisiana from failure of the block system. The commission has notified the Illinois Central, the Yazoo & Mississippi Valley, and the Texas & Pacific that at the hearing they will be called on to show cause why an order should not be issued requiring them to install the block system.

The New York State Public Service Commission, Second district, announces that the sum to be asked for from the legislature, at the next session, for elimination of grade crossings will be \$500,000. As the state usually pays one-fourth of the total cost of the abolition of a grade crossing, this indicates that the commission expects to do two million dollars' worth of work of this kind in the Second district. The commission now has on file applications for the elimination of grade crossings at 24 places on the New York Central; three on the New York, Ontario & Western, two on the Lackawanna, two on the Erie, two on the Delaware & Hudson, two on the Long Island, and one on the Central New England; also several crossings in which two or more railroads are interested.

On the Pennsylvania Railroad system east and west of Pittsburgh there are now 2,872 steel passenger train cars, besides 520 sleeping and parlor cars owned by the Pullman Company, and used on the Pennsylvania lines. The 2,872 cars cost forty million dollars. The foregoing figures include the steel cars on the Long Island, the Cumberland Valley, the New York, Philadelphia & Norfolk, the Vandalia, and the Grand Rapids & Indiana, as well as the roads directly operated by the Pennsylvania. Included in the total are 68 dining cars, 159 postal cars and 11 Long Island Railroad parlor cars. Besides all these the Pennsylvania and its controlled lines have ordered for future delivery 394 steel cars, as follows: 296 coaches, 18 dining cars, 25 combined passenger and baggage cars; 2 baggage, 4 postal, 48 combined baggage and mail, 1 office car and 10 parlor cars, the parlor cars for the Long Island Railroad.

George J. Bury, vice-president of the Canadian Pacific, has recently issued a circular to employees of that road on the value of team-work, in which he says, in part as follows: "Good team-work is necessary if we are to hold our present traffic and attract an increasing volume to the road. We can only do so by efficiency and by satisfying the shipping and traveling public. If there is one unfortunate habit that men in railway service lapse into, it is that of dismissing responsibility by feeling that it belongs to someone else. We cannot obtain results by minimizing the importance of complaints and dismissing them by simply relegating them to some other branch of the service or placing the responsibility on some junior and letting it end there. Everyone connected with our service is expected to use his best efforts in the harmonious working of the system, and to co-operate with those around him, considering himself part of the machinery of our organization and endeavoring to increase its effectiveness in every way in his power."

The Postmaster-General has given out a statement showing that 310,245,000 pieces of franked mail were carried during the last fiscal year. The weight of this mail is given as 61,000,000 lbs., equal to 3.8 per cent of the total weight of all domestic mail carried. During the Presidential and Congressional primary campaign, in the last quarter of the fiscal year, an extraordinary amount of franked matter was sent through the mails at public expense. This matter consisted of political speeches, reports and documents of all kinds, and even of one complete political campaign book, all of which had been made technically frankable by insertion in the Congressional Record. It is computed that the total weight of this franked matter was between 7,000,000 and 8,000,000 lbs., all of which was transmitted as first-class mail. The Postmaster-General says that the unusual expense entailed by the great amount of political matter created a temporary deficit.

The Post Office Department is making preparations for the establishment of pneumatic tubes between the Grand Central Terminal, New York, and the Pennsylvania terminal, a distance of about 1.3 miles. There will be two tubes each 24 in. in diameter, and the apparatus is designed to carry bags of 100 lbs. each. The tubes now in use in New York between different post offices, are only 8 in. in diameter. A large-scale pneumatic mail carrying system has been in operation for several years between the United States capitol and the House office building. The Senate recently allowed an appropriation of \$250,000 to extend this system to include the Congressional Library, the Senate office building, the union station, the government printing office, and the new post office building in Washington. At New York, under the existing system of transportation between the Grand Central and the Pennsylvania terminals the mail wagons run 20 hours a day to transfer 4,000 or more bags of mail.

If there is any feature of railway operation that has been overlooked by the people who carry their troubles to the public service commissions, we shall no doubt hear of it shortly. The Ontario Railway and Municipal Board has recently considered (and dismissed) a request from the city of Toronto for an order requiring the Toronto Railway Company to open several depots for receipt of articles left on the cars, instead of carrying them to the Lansdowne barns. The board is of the opinion that it has no power or jurisdiction to declare that the present practice of the company in the care of articles left on the cars is unjust, unreasonable and improper, or to fix and prescribe some other method. The application is dismissed without costs, except that the city is required to pay \$20 for stamps on the order. It appears in the evidence that in the last year over 13,000 lost articles have been taken care of by the company. Of these about 7,000 were claimed and restored to the owners. The judgment points out that the company has to keep a storeroom at Lansdowne barns with a man in charge to file, label and return lost articles. The city solicitor asked the board to order some more central location for the taking of lost articles, as nearly everybody going to the Lansdowne barns must lose an hour or more, and pay two fares. The company's answer was that room in a building in the city would be too costly to be used for storage purposes.

Blacklisting Charged.

The railroads running into Atlanta have a common agreement not to employ a person who has ever sued any of them, and under this they have blacklisted him and prevented him from getting work, asserts William M. Savage, a switchman, in a \$10,000 damage suit filed in the superior court against the Seaboard Air Line. Savage states that he worked as a switchman for the Seaboard; and was injured in an accident, resigned and brought suit against the road. He won the suit and then applied to the Atlanta, Birmingham & Atlantic for a job as switchman.

Finally he obtained a temporary position with the A. B. & A., and that road wrote the Seaboard for recommendation, and the Seaboard, he alleges, made two false statements in reply. The first was that he had failed to notify them of his accident for several days after it occurred and, second that on his entering suit his service terminated. This letter and the agreement between the railroads, says Savage, caused him to be dismissed, and has forced him to work as a day laborer for less than half of what he could earn as a railroad man.—*Atlanta Constitution.*

New York Central Lines Indicted on Rebate Charges.

The Lake Shore & Michigan Southern, the Cleveland, Cincinnati, Chicago & St. Louis, and the Chicago, Indiana & Southern railways and the O'Gara Coal Company, of Chicago, were indicted on November 22, by the federal grand jury at Chicago, on charges of paying and accepting rebates said to amount to \$60,000, in November, 1909, in connection with shipments of coal from the coal company's mines at Harrisburg, Ill. George M. Glazier, auditor of the Lake Shore; R. M. Huddleston, general auditor of the New York Central Lines, and W. A. Brewerton, secretary of the coal company, were witnesses before the grand jury. The indictments result from investigations conducted by the Interstate Commerce Commission in connection with its general inquiry into the relations between railways and the coal companies, at which it was developed that many prominent officers of the New York Central Lines were formerly large stockholders in the O'Gara Coal Company, and that some of them now own such stock, which is held in names of other persons. Mr. Huddleston, at a recent hearing before Commissioner Harlan, was questioned at length regarding the \$60,000 payments, and was unable to give an explanation which was satisfactory to the commissioner. At a recent hearing in New York, it is reported that President W. C. Brown, of the New York Central, testified that he assisted in the organization of the O'Gara Coal Company in 1905.

E. T. Glennon, assistant vice-president of the legal department of the New York Central Lines, has offered the explanation that the \$60,000 represented a loan to the coal company, accounted for as an advance payment for coal not yet received. On Thursday of this week Thomas O'Gara, president of the O'Gara Coal Company was indicted on a charge of accepting a rebate.

First Complaint Before the Diversion Commission.

Fairfax Harrison, president of the Chicago, Indianapolis & Louisville and chairman of the Commission on Car Service, appointed by the American Railway Association, has issued the following statement:

"The first case which has been brought before the commission appointed by the American Railway Association to prevent the diversion and delay of cars was on the complaint by the Baltimore & Ohio against the Wheeling & Lake Erie.

"The commission found that the condition complained of was due, in a large measure, to the considerable number of Wheeling & Lake Erie system cars which were widely scattered on other roads and had not been available for use by their owner for several months. Deeming that its function was to remedy the immediate situation, the commission adopted methods of mediation and has, through the co-operation of other railroads with whom it has used its good offices, secured a promise for prompt and direct return of the Wheeling & Lake Erie cars without regard to home route, in an amount sufficient to enable the Wheeling & Lake Erie to return to the Baltimore & Ohio the cars the delay of which was the cause of the complaint."

Louisiana Commission Report on Montz Collision.

The rear collision at Montz, La., November 11, in which 13 passengers were killed, was reported in the *Railway Age Gazette* of November 15, page 957; and in the issue of November 22 we gave (page 1001) the conclusion of a board of inquiry, which was convened by the railroad company, and (page 1002) the conclusions of the state railroad commission. The full report of the state commission, since received, gives a few additional details.

The flagman did not take fuses with him. The conductor might have seen that these fuses were left lying on the rear platform of the rear car. This flagman had been in service about 15 months. In his application he said that he was born in 1880. He says that he intended to write 1890. In fact, he was born in 1893, and the commission says that he is a mere boy. Any experienced inspector could easily have seen that he was much younger than he said he was. His application for the position of flagman was made after he had received only ten days' instruction as such. "The company seems to have paid very little attention to this." In this connection, the com-

mission says that the fireman of one of the locomotives of the passenger train knew very little about the rules and had never seen a rule book, although on occasion he was required to protect the front end of the train by flag.

When the passenger train stopped, the conductor went forward to the engine and remained there about thirty minutes. He might just as well have gone back, in a few minutes, to the rear of the train, where he belonged. The freight train was running at 25 miles an hour, probably 28 miles an hour, or faster, though the rule limits the speed to 25 miles an hour. In this respect the commission holds the engineman of the freight careless. The report says that the passenger cars were very old and poor, but gives no details to confirm this statement, except that the fourth car crushed the fifth car almost its entire length. Of the two engines drawing the passenger train, one and the one which failed, causing the unusual stop, had been taken from a work train. It never was a passenger engine. It had broken down once on the day before, and had stopped several times on its southbound trip, for causes which are unexplained.

Following its conclusions concerning matters of safety, the commission severely censures a trainmaster for refusing to take, on his special train, to the scene of the wreck, two gentlemen whose families were on the wrecked train.

The commission also takes up the subject of block signaling and quotes the testimony of an officer of the road, to the effect that the Illinois Central had appropriated \$270,000 for block signals in 1911 and \$300,000 in 1912; and only 12 miles of line in the state of Louisiana received any benefit from these appropriations. In a low, flat country, where fogs are of frequent occurrence, there is more demand for a block system than in a higher and drier climate. The report says that, except in the cane-grinding season, telegraph offices on the road in that region are 31 miles apart; but there is no specific comment on this fact. The block system is recognized by the Illinois Central, as by most railroad authorities, as a safe method of controlling trains; the system should be installed. The report is signed by J. J. Meredith (chairman), Shelby Taylor and Henry D. Schreiber.

Railway Signal Association Committees.

The Board of Direction of the Railway Signal Association met in Chicago at the Congress Hotel, on Thursday, November 14, and completed the committee assignments for the year 1912-1913. The list of the new committees, the personnel of each, and the outlines of the work laid out by the Board are given below.

COMMITTEE NO. I—SIGNALING PRACTICE.

Personnel.

A. H. Rudd, Sig. Engr., P. R. R., Philadelphia, Pa., Chairman; T. S. Stevens, Sig. Engr., A. T. & S. F., Topeka, Kans., Vice-Chairman; C. C. Anthony, Asst. Sig. Eng., P. R. R., Philadelphia, Pa.; H. S. Balliet, Sig. Engr. Elec. Div., and Eng. Mtc. of Way, Grand Central Terminal, N. Y. C. & H. R., New York City; C. A. Christofferson, Sig. Eng., N. P., St. Paul, Minn.; C. E. Denney, Sig. Engr., L. S. & M. S., Cleveland, Ohio; W. J. Eck, Elec. Engr., Southern Ry., Washington, D. C.; W. H. Elliott, Sig. Engr., N. Y. C. & H. R., Albany, N. Y.; G. E. Ellis, Sig. Engr., K. C. T. Ry. Co., Kansas City, Mo.; A. S. Ingalls, Gen. Supt., L. S. & M. S., Cleveland, Ohio; J. C. Mock, Sig. Engr., M. C., Detroit, Mich.; F. P. Patenall, Sig. Engr., B. & O., Baltimore, Md.; J. A. Peabody, Sig. Engr., C. & N. W., Chicago, Ill.; W. B. Scott, Pres. Sunset Lines, Houston, Tex.; A. G. Shaver, Sig. Engr., C. R. I. & P., Chicago, Ill.; H. H. Temple, Supt., B. & O., New Castle, Pa.; J. C. Young, Sig. Engr., U. P., Omaha, Neb.

Outline of Work.

*Note—(a) See general instructions to committees; and (b) Select from the manual material applicable to specifications, either in course of formation or under consideration; identifying merely by reference to subject, section number, and letter.

*This note applies also to Committees II, III, IV, V, IX, and the special committees on State of Signaling in the Northwest and on Contracts.

(a) Report on the effect of treated and metal ties on track circuits; and on the (b) Economics of labor in signal maintenance; and (c) Formulate and submit requisites for switch indicators, including methods of conveying information as to condition of the block to the conductor and engineman.

COMMITTEE NO. II—MECHANICAL INTERLOCKING.

Personnel.

C. J. Kelloway, Sig. Engr., A. C. L., Wilmington, N. C., Chairman; D. M. Case, Supt. Sigs., C. N. O. & T. P., Lexington, Ky., Vice-Chairman; L. Brown, Gen. Sig. For., A. T. & S. F., Topeka, Kans.; G. W. Chappel, Asst. S. E., N. Y. N. H. & H., New Haven, Conn.; W. H. Fenley, Sig. Engr., Panama, R. R.; C. S. Foster, Supr. Sigs., P. R. R., Wilmington, Del.; O. Frantzen, Supr. Sigs., N. Y. N. H. & H., Boston, Mass.; E. Hanson, Sig. Supr., G. C. & S. F., Cleburne, Tex.; E. G. Hawkins, Chf. Draftsman, Sig. Dept., N. Y. C. & H. R., Albany, N. Y.; J. A. Johnson, Sig. Engr., M. K. & T., Denison, Tex.; T. E. Kirkpatrick, Supr. Sigs., L. S. & M. S., Elkhart, Ind.; J. B. Lamb, Sig. Supr., Southern Ry., Washington, D. C.; J. W. McClelland, Supr. Sigs., P. & R., Philadelphia, Pa.; E. E. Mack, Supr. Sigs., C. & E. I., Salem, Ill.; S. Miskelly, Gen. Sig. Inspr., C. R. I. & P., Chicago, Ill.; W. B. Morrison, Supr. Intkg., D. L. & W., Newark, N. J.; Chas. Stephens, Sig. Engr., C. & O., Richmond, Va.; F. C. Stuart, Sig. Engr., Sunset Route, Houston, Tex.; J. I. Vernon, Sig. Supr., N. Y. N. H. & H., New Haven, Conn.; W. F. Zane, Sig. Ins., C. B. & Q., Chicago, Ill.

Outline of Work.

(a) Prepare specifications for apparatus and materials used in mechanical interlocking construction; (b) Prepare standard layouts for leadouts and lead-aways, and for connecting switches, slips, movable point frogs and derails; (c) Prepare specifications for apparatus and materials used in electro-mechanical interlocking; and (d) Confer with Committee XV. of the American Railway Engineering Association as to interlocking and operation of drawbridges.

COMMITTEE NO. III—POWER INTERLOCKING.

Personnel.

R. C. Johnson, Asst. Sig. Engr., N. Y. C. & H. R., New York City, Chairman; F. B. Wiegand, Asst. Sig. Engr., L. S. & M. S., Cleveland, Ohio, Vice-Chairman; Burt Anderson, Asst. Sig. Engr., A. T. & S. F., Topeka, Kans.; W. H. Arkenburgh, Chf. Draftsman, Sig. Dept., C. R. I. & P., Chicago, Ill.; M. H. Collins, Supr. Sigs., Hud. & Man., New York City; J. R. Decker, Div. Engr., M. C., Bay City, Mich.; A. B. du Bray, Inspr. Elec. Sigs., Frisco System, Springfield, Mo.; G. B. Gray, Sig. Inspr., P. L. W., Pittsburgh, Pa.; W. H. Harland, Elec. & Sig. Eng., N. Y. O. & W., Middletown, N. Y.; H. H. Harman, Engr. Bridges, B. & L. E., Greenville, Pa.; E. C. Hitchcock, Sig. Inspr., N. Y. N. H. & H., New Haven, Conn.; M. H. Loughridge, Asst. Engr., Sig. Dept., N. Y. W. & B., New York City; J. W. MacCormack, Sig. Inspr., K. C. T., Kansas City, Mo.; W. N. Manuel, Sig. Supr., G. R. & I., Grand Rapids, Mich.; G. A. Motry, Sig. Inspr., B. & O., Baltimore, Md.; H. H. Orr, Sig. Inspr., C. & E. I., Chicago, Ill.; F. W. Pfleging, Supr. Sigs., U. P., Kansas City, Mo.; A. B. Pollock, Supr. Sigs., P. R. R., East Liberty, Pa.; W. M. Post, Supr. Sigs., P. R. R., Jersey City, N. J.; I. S. Raymer, Asst. Sig. Engr., P. & L. E., Pittsburgh, Pa.; D. W. Rossell, Inspr. Sigs., N. Y. C. & H. R., Yonkers, N. Y.; T. C. Seifert, Sig. Inspr., C. B. & Q., Chicago, Ill.; F. G. Smith, Sig. Supr., C. & E. I., Danville, Ill.; O. R. Unger, Sig. Inspr., M. P., St. Louis, Mo.; G. A. Ziehlke, Supr. Sigs., U. P., Kansas City, Mo.

Outline of Work.

(a) Continue preparation of specifications for apparatus and materials used in power interlocking construction; (b) Continue the preparation of typical circuit plans for electric interlocking; (c) Investigate the use of 30 volts or less for the control of interlocking apparatus; (d) Continue preparation of plans for wire ducts, terminal boxes and manholes; and (e) Confer with Committee XV of the American Railway Engineering Association as to interlocking and operation of drawbridges.

COMMITTEE NO. IV—AUTOMATIC BLOCK.

Personnel.

A. G. Shaver, Sig. Engr., C. R. I. & P., Chicago, Ill., Chairman; J. M. Fitzgerald, Engr. Maint. Sigs., N. Y. C. & H. R., Albany, N. Y., Vice-Chairman; E. L. Adams, Chf. Sig. Insp., L. S. & M. S., Cleveland, Ohio; E. E. Bradley, Sig. Engr., W. M., Baltimore, Md.; G. H. Dryden, Asst. Sig. Engr., B. & O., Baltimore, Md.; H. Folley, Asst. Sig. Supr., C. & E. I., Terre Haute, Ind.; A. R. Fugina, Sig. Engr., L. & N., Louisville, Ky.; R. E. Greene, Asst. Sig. Engr., M. C., Detroit, Mich.; W. R. Hastings, Asst. Sig. Engr., C. R. I. & P., Chicago, Ill.; W. H. Higgins, Sig. Engr., C. R. R. of N. J., Elizabeth, N. J.; B. F. Hines, Sig. Engr., N. O. & N. E., New Orleans, La.; B. A. Lundy, Asst. Engr., N. Y. C. & H. R., Albany, N. Y.; L. P. Mase, Gen. Sig. Constr. For., N. Y. C. & H. R., Yonkers, N. Y.; J. C. Mill, Asst. Sig. Engr., C. M. & St. P., Milwaukee Shops, Wis.; C. W. Parker, Sig. Engr., Can. Pac., Montreal, Can.; R. M. Phinney, Asst. Engr., Sig. Dept., C. & N. W., Chicago, Ill.; E. K. Post, Supr. Sigs., P. R. R., Altoona, Pa.; H. J. Rhinehart, Draftsman, Sig. Dept., D. L. & W., Hoboken, N. J.; A. H. Rice, Sig. Engr., D. & H., Albany, N. Y.; D. S. Rice, Supr. Sigs., L. V., Geneva, N. Y.; A. A. Roberts, Sig. Insp., K. C. T., Kansas City, Mo.; G. W. Trout, Sig. Engr., P. M., Detroit, Mich.; F. E. Whitcomb, Sig. Engr., B. & A., Boston, Mass.

Outline of Work.

(a) Prepare specifications of apparatus and material used in automatic signal construction; (b) Continue on relay specifications; (c) Prepare specifications for field work in automatic block construction; and (d) Continue on typical circuit plans for automatic block signaling, covering the simple and more common situations first.

COMMITTEE NO. V—MANUAL BLOCK.

Personnel.

T. S. Stevens, Sig. Engr., A. T. & S. F., Topeka, Kans., Chairman; L. R. Mann, Supr. Sigs., M. P., St. Louis, Mo., Vice-Chairman; E. T. Ambach, Asst. Sig. Engr., B. & O. S. W. & C. H. & D., Cincinnati, Ohio; Hadley Baldwin, Supr., C. C. C. & St. L., Mattoon, Ill.; J. Beaumont, Sig. Engr., C. G. W., Chicago, Ill.; M. W. Bennett, Supr. Sigs., Grand Central Terminal, New York, N. Y.; E. A. Black, Sig. Supr., L. S. & M. S., Ashtabula, Ohio; C. Drake, Supr. Sigs., C. & N. W., Chicago, Ill.; J. A. Fleissner, Sig. Insp., C. M. & St. P., Milwaukee, Wis.; M. J. Fox, Asst. Sig. Engr., C. B. & Q., Lincoln, Neb.; G. A. Guyer, Sig. Supvr., N. Y. C. & H. R., Albany, N. Y.; B. A. Hinman, Chf. Sig. Insp., N. Y. C. & H. R., Albany, N. Y.; H. K. Lowry, Gen. Constr. Supt., C. R. I. & P., Chicago, Ill.; G. S. Pflasterer, Sig. Engr., N. C. & St. L., Nashville, Tenn.

Outline of Work.

(a) Investigate the relative advantages or disadvantages, and relative cost (installation, maintenance and operation) of the various kinds of manual block systems (manual, controlled manual and staff); (b) Continue preparation of rules for the maintenance and operation of interlocking plants and block signals; and (c) Continue investigations of methods of handling trains by signal indications without train orders.

COMMITTEE NO. VI—STANDARD DESIGNS.

Personnel.

J. C. Mock, Sig. Engr., M. C., Detroit, Mich., Chairman; C. C. Anthony, Asst. Sig. Engr., P. R. R., Philadelphia, Pa.; Vice-Chairman; G. E. Ellis, Sig. Engr., K. C. T., Kansas City, Mo.; W. A. Hanert, Chf. Draftsman, M. C., Detroit, Mich.; C. J. Kelloway, Sig. Engr., A. C. L., Wilmington, N. C.; F. P. Patenall, Sig. Engr., B. & O., Baltimore, Md.; M. E. Smith, Sig. Engr., D. L. & W., Hoboken, N. J.; R. E. Trout, Sig. Engr., Frisco System, Springfield, Mo.; J. C. Young, Sig. Engr., U. P., Omaha, Neb.

Outline of Work.

(a) Continue preparation of standard designs.

COMMITTEE NO. VII—SUBJECTS AND DEFINITIONS.

Personnel.

E. G. Stradling, Sig. Engr., C. I. & L., Lafayette, Ind., Chairman; A. D. Cloud, Editor *The Signal Engineer*, Chi-

cago, Ill.; Paul M. Gault, Sig. Supr., P. R. R.—Penn. Lines, Chicago, Ill.; C. G. Stecher, Supr. Sigs., C. & N. W., Chicago, Ill.

Outline of Work.

(a) Prepare definitions for technical terms connected with signaling, particularly any terms which discussions show are not properly defined; and (b) Compile definitions in the form of a Signal Dictionary, giving terms and definitions only—without descriptive matter.

COMMITTEE NO. VIII—ELECTRIC RAILWAY AND ALTERNATING CURRENT SIGNALING.

Personnel.

H. S. Balliet, Sig. Engr. Elec. Div. and Engr. Mtc. of Way, Grand Central Terminal, New York, Chairman; J. E. Saunders, Asst. Sig. Engr., A. T. & S. F., Topeka, Kans., Vice-Chairman; W. P. Allen, Insp. Sigs., P. R. R., Philadelphia, Pa.; J. A. Beoddy, Gen. Sig. Insp., N. & W., Roanoke, Va.; L. R. Byram, Supr. Sigs., C. R. I. & P., Chicago, Ill.; J. D. Elder, Sig. Insp., K. C. T. Ry., Kansas City, Kans.; W. F. Follett, Elec. Insp. Sig. Dept., N. Y. N. H. & H., New Haven, Conn.; E. C. Grant, Supr. Sigs., U. P., Omaha, Neb.; C. H. Morrison, Sig. Engr., N. Y. N. H. & H., New Haven, Conn.; W. W. Morison, Asst. Sig. Engr., N. Y. C. & H. R., New York, N. Y.; C. R. Peddle, Office Engineer, Sig. Dept., I. R. T., New York, N. Y.; John Roberts, Sig. Engr., N. Y. W. & B., New York, N. Y.; W. Y. Scott, Supr. Sigs., B. & M., Boston, Mass.; E. B. Smith, Supr. Sigs., Grand Central Terminal, New York City; W. N. Spangler, Supr. Sigs., P. R. R., Philadelphia, Pa.; F. S. Starratt, Sig. Supr., S. P., West Oakland, Cal.; F. E. Wass, Supr. Sigs., N. Y. C. & H. R., New York City.

Outline of Work.

(a) Continue investigation of the various systems in operation; (b) Prepare specifications and requisites of apparatus and material for A. C. block signal system where A. C. propulsion is used; (c) Continue preparation of specifications for those items referred to and printed as blanks in system employing D. C. current for propulsion; (d) Prepare specifications for those items referred to and printed as blanks in system employing steam for propulsion; and (e) Investigate the induction effects between the signal circuits and adjacent electric circuits, and formulate recommendations.

COMMITTEE NO. IX—WIRES AND CABLES.

Personnel.

W. H. Elliott, Sig. Engr., N. Y. C. & H. R., Albany, N. Y., Chairman; E. L. Adams, Chf. Sig. Insp., L. S. & M. S., Cleveland, Ohio, Vice-Chairman; W. I. Bell, Supr. Sigs., P. R. R., Media, Pa.; W. L. Dryden, Sig. Supr., S. I. R. T., St. George, S. I., N. Y.; A. B. Himes, Sig. Insp., B. & O., Baltimore, Md.; D. W. Richards, Jr., Sig. Engr., N. & W., Roanoke, Va.; J. V. Young, Supt. Sigs., B. & M., Boston, Mass.

Outline of Work.

(a) Continue investigation and tests of mineral matter rubber compound insulated signal wire; (b) Prepare specifications for the various kinds of magnet wire; and (c) Continue preparation of specifications for wire and cable for high tension circuits, conferring as to conditions and requirements with Committee VIII.

COMMITTEE NO. X—STORAGE BATTERIES AND CHARGING EQUIPMENT.

Personnel.

R. B. Ellsworth, Asst. Sig. Engr., N. Y. C. & H. R., Albany, N. Y., Chairman; H. W. Lewis, Sig. Engr., L. V., So. Bethlehem, Pa., Vice-Chairman; J. G. Bartell, Sig. Supr., L. V., Easton, Pa.; G. E. Beck, Supr. Sigs., L. S. & M. S., Toledo, Ohio; T. N. Charles, Supr. Sigs., C. N. O. & T. P., Oakdale, Tenn.; J. Fred Jacobs, Gen. For. Maint., C. R. R. of N. J., Easton, Pa.; T. L. Johnson, Supr. Sigs., D. L. & W., Bath, N. Y.; A. H. McKeen, Sig. Engr., O. W. R. R. & N. Co., Portland, Ore.; J. Parker, Sig. Supr., N. Y. C. & H. R., Rochester, N. Y.; F. A. Purdy, Asst. Supr. Sigs., O. S. L., Nampa, Idaho; A. H. Yocom, Sig. Engr., P. & R., Philadelphia, Pa.

Outline of Work.

(a) Prepare specifications for apparatus and materials used in storage battery work; (b) Report on comparative economy of various methods for charging storage batteries; and (c) Prepare necessary descriptive matter covering use of storage battery in signaling.

SPECIAL COMMITTEE—STATE OF SIGNALING IN THE NORTH-WEST.
Personnel.

E. W. Newcomb, Sig. Engr., O. S. L., Ogden, Utah, Chairman; A. H. McKeen, Sig. Eng., O. W. R. R. & N. Co., Portland, Ore., Vice-Chairman; A. H. Barnes, Supr. Sigs., N. P., Tacoma, Wash.; R. C. Carlton, Supr. Sigs., O. W. R. R. & N. Co., Portland, Ore.; Jas. S. Orr, Supr. Sigs., O. S. L., Pocatello, Ida.; G. T. Petticrew, Supr. Sigs., G. N., Seattle, Wash.; L. W. Smith, Sig. Engr., C. M. & St. P., Tacoma, Wash.; G. F. Williams, Chf. Draftsman, O. S. L., Ogden, Utah; J. R. Wills, Supr. Sigs., O. S. L., Ogden, Utah.

Outline of Work.

(a) Analyze all present specifications with reference to the particular conditions and requirements of the railroads represented by the members of the committees.

SPECIAL COMMITTEE—CONTRACTS.

Personnel.

L. S. Rose, Sig. Engr., C. C. C. & St. L., Cincinnati, O., Chairman; C. A. Christofferson, Sig. Engr., N. P., St. Paul, Minn., Vice-Chairman; N. E. Baker, Sig. Engr., I. C., Chicago, Ill.; Geo. Boyce, Supt. Tel. & Sigs., C. St. P. M. & O., St. Paul, Minn.; R. L. Davis, Office Engr., Sig. Dept., M. C., Third St. Sta., Detroit, Mich.; C. A. Dunham, Sig. Engr., Grand Trunk, Montreal, Que.; R. L. Huntley, Asst. Gen. Mgr., U. P., Omaha, Nebr.; J. B. Latimer, Sig. Engr., C. B. & Q., Chicago, Ill.; C. D. Purdon, Chf. Engr., St. L. S. W., St. Louis, Mo.; E. B. Pry, Sig. Inspr., P. L. W., Pittsburgh, Pa.; J. C. Young, Sig. Engr., U. P., Omaha, Nebr.; H. E. Brashares, Asst. Sig. Engr., G. N., St. Paul, Minn.

Outline of Work.

(a) Continue preparation of forms of contracts for joint interlocking plants; (b) prepare form of contract for installation of block signals or interlocking plants; (c) investigate the method of accounting between railways as to arbitrary charges, percentages to be added to material and labor, etc., in connection with joint signal facilities, and submit recommendations as to uniform agreement; and (d) prepare form of contract as between railway company and company furnishing the power, to cover energy supplied for signal installations.

SPECIAL COMMITTEE—SIGNAL PERFORMANCE.

Personnel.

W. N. Manuel, Sig. Supr., G. R. & I., Grand Rapids, Mich., Chairman; J. W. Hackett, Sig. Supr., N. Y. C. & H. R., Buffalo, N. Y., Vice-Chairman; C. A. Cotton, Div. Sig. For., A. T. & S. F., Chillicothe, Ill.; B. F. Dickenson, Supr. Sigs., N. J. & S., Camden, N. J.; S. B. Kellar, Supr. Sigs., B. & O., Wilmington, Del.; G. J. Patton, Supr. Sigs., D. L. & W., Newark, N. J.; J. B. Weigel, Sig. Supr., St. L. & S. F., Springfield, Mo.; L. L. Whitcomb, Supr. Sigs., L. S. & M. S., Elyria, O.

Outline of Work.

Investigate and report on the basis now used on various railways in recording interruptions to traffic by signals, and in computing efficiency of signal performance.

SPECIAL COMMITTEE—SIGNALING REQUIREMENTS OF ELECTRIC RAILWAYS.

Personnel.

J. M. Waldron, Sig. Engr., I. R. T., New York City, Chairman; C. H. Morrison, Sig. Engr., N. Y., N. H. & H., New Haven, Conn.; John Leisenring, Sig. Engr., I. T. System, Springfield, Ill.

SPECIAL COMMITTEE.

To co-operate with the Engineering Sub-Committee of the Special Committee on Relation of Railway Operation to Legislation.

Personnel.

C. E. Denney, Sig. Engr., L. S. & M. S., Cleveland, O., Chair-

man; W. J. Eck, Elec. Engr., Southern Ry., Washington, D. C.; J. A. Peabody, Sig. Engr., C. & N. W., Chicago, Ill.; A. G. Shaver, Sig. Engr., C. R. I. & P., Chicago, Ill.

SPECIAL COMMITTEE—EDITING AND MANUAL
Personnel.

W. J. Eck, Elec. Engr., Southern Ry., Washington, D. C.; H. S. Balliet, Sig. Engr., Elec. Div. and Engr. Mte. of Way, Grand Central Terminal, New York; C. C. Rosenberg, Sec'y., R. S. A., Bethlehem, Pa.

COMMITTEES OF THE BOARD OF DIRECTION.

Committee Work and Personnel.

F. P. Patenall, Chairman; T. S. Stevens; C. E. Denney; C. C. Anthony; and C. A. Dunham.

Places for Convention.

C. E. Denney, Chairman; W. H. Higgins; M. E. Smith; H. W. Lewis; J. C. Young; and E. E. Hudson.

Convention Arrangements.

T. S. Stevens, Chairman; G. S. Pflasterer, Vice-Chairman; C. C. Rosenberg; R. E. Trout; A. D. Cloud; and co-operating committee of the Signal Appliance Association: L. Thomas; B. L. Winchell, Jr.; and W. P. Hawley.

SPECIAL COMMITTEE ON SIGNALING REQUIREMENTS OF ELECTRIC RAILWAYS.

Outline of Work.

(a) Bring to the attention of chairmen of other committees as necessary the peculiar requirements and conditions of electric railways. (b) Recommend such changes in the Standards and Recommended Practice and such amendments of the conclusions of other committees as may be deemed necessary for electric railways. Chairmen of other committees to consult freely with the Special Committee.

Fortnightly Report of Cars to the Government.

The Interstate Commerce Commission, pursuant to its purpose to investigate unreasonable diversion or improper use of freight cars, has sent an order to the principal railroads, calling for semi-monthly reports of the location of freight cars. The order calls for a statement of the situation on December 1, the report to be in Washington by December 10.

Car Ferries for the Wabash.

By an order of the United States Circuit Court of Appeals at St. Paul, the receivers of the Wabash Railroad are authorized to expend \$200,000 in the purchase of three large ferryboats from the Michigan Central, to be used in carrying cars across the Detroit river, and \$50,000 for repairing these boats. The receivers were also authorized to spend \$75,000 in the purchase of the capital stock of the Detroit & Western, and to accept certain ordinances in Kansas City, Mo., to facilitate the construction of a new freight house there.

American Society of Mechanical Engineers.

The annual meeting of the American Society of Mechanical Engineers will be held December 4-6. The railroad session will be held on Thursday morning, December 5. Two papers will be discussed at this session, one on Some Factors in the Selection of Locomotives with Relation to the Economics of Railway Operation, by O. S. Beyer, Jr., of the Rock Island Lines and one on Train Lighting, by D. F. Wood, of the Pennsylvania Railroad, and H. A. Currie, of the New York Central & Hudson River. Mr. Beyer's paper is divided into five sections as follows: Service, typography, train speeds and train resistance; size and types of locomotives for passenger, freight and switching service, permanent plant and its relation to motive power selection, including track, yard and passenger sidings, locomotive terminals, shop facilities and clearances; relation of operating expenses to the selection of motive power, including transportation expenses, maintenance of equipment, maintenance of way and structures and overhead charges; and final determination of the most economical locomotive to adopt. There will be a discussion of different phases of this paper, including the consideration

of the possibilities of different types of locomotives and of methods of improving their operating efficiency. The paper on Train Lighting is divided into seven sections as follows: Brief historical sketch of car lighting, describing the periods of candle lighting, oil lighting, the various types of gas lighting, and finally the period of electric lighting; the electric period from the first straight storage systems to date is discussed in detail and the storage battery, head end system and axle generating system are all presented with the reasons leading up to their adoption and the good and bad points of each; under the axle generating system the requirements for successful operation are discussed at length. Various types of suspension are described, also the regulators of different systems; the question of voltages is discussed and in this connection lamps and fixtures with deflectors, etc., are covered; standardization of voltages and batteries; tabulation showing the number of electrically lighted cars, types of batteries, voltages, number of cells, etc.; and a train lighting biography arranged in chronological order is appended to this paper. There will also be a discussion on this paper.

Western Railway Club.

At the monthly meeting of the Western Railway Club, held at the Auditorium Hotel, Chicago, on November 19, H. McL. Harding, of the Westinghouse Electric & Manufacturing Company, presented an illustrated paper on The Telpherage System as Applied to Shops and Terminals.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass. Convention, May 6-9, St. Louis, Mo.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill. Annual meeting, June 17-20, Buffalo, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, St. Louis, Mo.; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York.

AMERICAN ELECTRICAL RAILWAY MANUFACTURERS' ASSOC.—George Keegan, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Next meeting, May 21, New York.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichy, C. & N. W., Chicago. Convention, October 21-23, 1913, Montreal.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Convention, March 18-20, 1913, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago. Convention, June 11-13, Atlantic City, N. J.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—M. H. Bray, N. Y. N. H. & H., New Haven, Conn.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.; annual, June, 1913.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 13 Park Row, New York; 2d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Convention, 3d week in January, 1913, Chicago.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago. Annual meeting, May 28, Atlantic City, N. J.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago. Semi-annual meeting, June, 1913, Atlantic City, N. J.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 112 West Adams St., Chicago; annual, May 20, 1913, St. Louis, Mo.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Meeting Dec. 10-11, 1912, New Orleans, La.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—H. A. Neally, Joseph Dixon Crucible Co., Jersey City, N. J. Meeting with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va. Next convention, June 18, Bluff Point, N. Y.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, 922 McCormick building, Chicago. Annual meeting, May, 1913, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, Brown Marx building, Birmingham, Ala.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Annual meeting, August 18, Richmond, Va.

MAINTENANCE OF WAY MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—W. G. Wilson, Lehigh Valley, Easton, Pa.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Convention, May 26-29, 1913, Chicago.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago. Convention, June 16-18, Atlantic City, N. J.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Annual meeting, September 9-12, Ottawa, Can.

NATIONAL RAILWAY APPLIANCES ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.

NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

NORTHERN RAILROAD CLUB.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Tuesday.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 2 Rector St., New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.

RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo. Next meeting, August 12-15, Nashville, Tenn.

RAILWAY DEVELOPMENT ASSOCIATION.—W. Nicholson, Kansas City Southern, Kansas City, Mo. Next meeting, Nov. 17, 1912, Cincinnati, Ohio.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa. Meetings, March 17, Chicago; June 10-11, New York; convention, October 14, Nashville, Tenn.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.

RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. Assocs.

RAILWAY TEL. AND TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.

RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.

ROADMasters' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Convention, September 8-12, 1913, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala. Next meeting, April 17, Atlanta, Ga.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meeting with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library building, St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago. Annual meeting, June 17, Los Angeles, Cal.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y. Annual meeting, August, 1913, Chicago.

UTAH SOCIETY OF ENGINEERS.—R. B. Ketchum, University of Utah, Salt Lake City, Utah; 3d Friday of each month, except July and August.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News.

The Iron Mountain has established a new freight train schedule between New Orleans and St. Louis, by which trains will run through in either direction in 70 hours.

A train called the Trade Extension Special, now traversing the railways to a number of southern cities, is occupied by 80 merchants of Philadelphia who are visiting the south to promote the interests of Philadelphia as a wholesale trade center.

The Delaware & Hudson has announced an embargo on shipments of coal to Canada and has notified its Canadian connections that it must have back some of its cars that are now in Canada before it can send any more coal to the Dominion.

The Illinois Central has installed an exhibition of southern products in the main waiting room of its Park Row Station at Chicago, which will be maintained permanently as part of the railway's campaign of education regarding the industrial and agricultural possibilities of the south.

Four prominent railroads of Canada have asked from the Railway Commission authority to increase the rates of demurrage on freight cars. They desire to make the rate for the first day after the expiration of the free time \$2; for the second day, \$3, and for the third and each succeeding day, \$4 a car.

The Chicago, Peoria & New Orleans Transportation Company has been incorporated under the laws of Delaware, to operate a steamboat line between LaSalle, Ill., and New Orleans. The capital stock is \$500,000, and the incorporators include Edward White of Peoria, C. G. Alexander of Chicago, and Joseph F. Bartley of Peoria.

The weekly bulletin issued by the New York State Public Service Commission, Second district, announcing changes in freight rates on the roads of the state, has contained for the last two weeks a considerable number of embargoes announced by some of the principal roads of the state. Most of these embargoes have to do with apples and potatoes.

The Texas & Pacific and the International & Great Northern are preparing to run agricultural demonstration trains on their lines in Texas in the early part of January. These trains will be made up of seven cars each, and instruction will be given not only concerning cattle, hogs, soils and other outdoor matters, but also on domestic science, this last to be in charge of a lecturer from the Denton Girls' Industrial School.

The New York State College of Forestry, at Syracuse University, announces its readiness to co-operate with land owners in making plans for the best management of timber land and for the reforestation of waste lands. Under favorable circumstances the college will give the services of its trained men without expense to the land owner. This college, which was established in July, 1911, now provides a five-year professional course, and a one-year and a two-year ranger course on its forest of 1,800 acres at Wanakena, N. Y.; and there is also held a summer camp of four weeks in the Adirondacks. Dean H. P. Baker will give additional information.

The North Western Limited train of the Chicago & North Western between Chicago, St. Paul and Minneapolis is now made up wholly of new cars, consisting of a parlor observation car, lounging car, dynamo baggage car, combination coach and smoking car, reclining chair car, dining car, two 16-section standard sleeping cars, and one 10-section drawing room-compartment car; and also a standard sleeping car between Milwaukee and Minneapolis. A special feature of the new train is the library-parlor-lounging car, luxuriously furnished in club style with large Turkish couches and substantial arm chairs. Other cars in the train also have new features, including roomy washrooms in the sleeping cars.

INTERSTATE COMMERCE COMMISSION.

The commission has further suspended from November 29, until March 29, items in supplements to Leland's tariff, which advance rates for the transportation of cotton seed from points in Oklahoma to Kansas City, Mo., and other points.

The commission has suspended until March 1 tariffs showing advanced rates on asphalt and asphaltum from points in Kansas to St. Louis and other places when destined to sections east of the Illinois-Indiana state line, proposed by the western trunk lines.

The commission has suspended from December 1, until March 31, certain schedules which advance rates for the transportation of flax tow, flax moss and flax fibre, in carloads, from St. Paul, Minn., Winona, Minn., and other points to Chicago, Peoria, Ill., St. Louis, Mo., Kansas City, Mo., and other points.

On November 11, the commission voted that shipments destined from points in the United States to Porto Rico, the Canal Zone, or the Philippine Islands are coastwise and not export shipments. Upon presentation of further information and for the purpose of further consideration of the subject, that ruling has now been rescinded.

The commission has suspended until March 25 certain schedules in supplements to the tariffs of the Chesapeake & Ohio and the Kanawha & Michigan, which would cancel the existing car-ferry routes for the transportation of coal from points in West Virginia and Kentucky to Milwaukee, Wis., Manitowoc and Kewaunee, in connection with the Pere Marquette. Similar routes would remain open in connection with the Grand Trunk:

Reparation Awarded.

Coffeyville Vitrified Brick & Tile Company v. St. Louis & San Francisco et al. Opinion by the commission:

The rate of 37 cents per 100 lbs. for the transportation of brick from Cherryvale, Kan., to Dermott, Ark., was found to have been unreasonable to the extent that it exceeded 25 cents. (25 I. C. C., 101.)

F. G. Alexander v. Southern Railway. Opinion by the commission:

The complaint is that demurrage charges were improperly assessed at Chattanooga, Tenn., on two carload shipments of hay from Panama, Mo. The commission found that the charges were properly assessed in one instance, but that in the other, the defendant did not properly follow instructions, and ordered a refund of \$6 on that car. (25 I. C. C., 32.)

Complaint Dismissed.

National Lumber Exporters' Association et al. v. Kansas City Southern et al. Opinion by the commission:

The complainants contend that the rates on lumber from points in Louisiana to New Orleans for export are unreasonable and discriminatory. The commission found that the evidence was not conclusive. (25 I. C. C., 78.)

Virginia Manufacturing Company v. Atlantic Coast Line et al. Opinion by the commission:

The complainant contends that the rates on small berry and fruit baskets from Suffolk, Va., to points in New England, New York, New Jersey and Pennsylvania are unreasonable. The commission found that the evidence was not conclusive. (25 I. C. C., 68.)

Charles Ream v. Southern Pacific et al. Opinion by the commission:

A tariff providing for the inclusion of a limited number of head of live stock with a carload shipment of household goods, and providing for free transportation of a caretaker when such live stock consists of either horses, mules, or cattle, cannot be construed to provide for free transportation of a caretaker for chickens, because shipped with household goods, nor is the tariff in question unreasonable or unduly discriminatory by reason of failure to so provide. (25 I. C. C., 107.)

Heater Car Charges Increased.

In re investigation and suspension of advances in rates by carriers for the transportation of potatoes and other perishable freight in heater cars between points in Trunk Line territory and Canada.

Boston Potato Receivers' Association v. Bangor & Aroostook et al. Opinion by Chairman Prouty:

As the same question was involved in these two cases, they

were treated in the same report. The commission found that the proposed tariffs, under suspension, which advance the heater charges in connection with the transportation of perishable fruits and vegetables from points in Maine to various points in New England, New York, New Jersey and Pennsylvania, will be just and reasonable and should be allowed to take effect when they have been modified so as to prescribe a reconsignment charge not exceeding \$4.00 per car in cases where heater cars loaded with potatoes are moving under heat, plus an additional charge not in excess of \$1.00 per car per day for heater service, during the entire period that the car is held for reconsignment; and also to prescribe no higher charge for the reconsignment of lined cars than for the reconsignment of ordinary box cars not lined; and so as to prescribe a regulation to the effect that no charge shall be made for the use of a heater car unless ordered by the shipper, or unless the fires in such cars are lighted. The Boston Potato Receivers' Association will be awarded reparation on certain shipments where box cars were ordered, but where heater cars were furnished and charges were collected for heater cars. 25 I. C. C., 159.

STATE COMMISSIONS.

The Michigan railroad commission held a hearing at Detroit on November 14, on a proposal of the railways to impose a graduated team track storage charge. A large number of shippers appeared and objected to the plan, some of them insisting on a reciprocal demurrage charge instead. An adjourned hearing will be held, at which the railways will introduce additional testimony.

The railway commissioners of Canada have given temporary approval to a general freight tariff, filed by the Canadian Pacific for its lines in Alberta and British Columbia. Final approval is deferred until the conclusion of the commissioners' inquiry into the general question of freight rates in British Columbia. The present approval stipulates that no rates shall be increased.

The Railroad Commission of Wisconsin, in the case of the Ripon Veneer & Box Works v. Chicago & North Western, found that the defendant instead of charging lumber rates on shipments of logs from various points on its line to Ripon when a part of the manufactured product of those logs is shipped out over the defendant's line, should charge instead the lower wood pulp rate as established in *In Re Rates on Pulp Wood*, 1908, 2 W. R. C. R., 168. Reparation was awarded.

The Railroad Commission of Wisconsin, in the case of the Wausau Paper Mills Company v. Chicago, Milwaukee & St. Paul, found that the present rate of 3 cents per 100 lbs. on shipments of ground wood pulp from Rothschild to Brokaw is unreasonable to the extent that it exceeds 2 cents per 100 lbs. The commission decided that the latter rate would also do justice as between the petitioner and the competing pulp and paper mills of the Wisconsin and Fox river valleys. Reparation was awarded.

The Railroad Commission of Wisconsin found that the rate of 1.5 cents per 100 lbs. charged the Ahnapee Veneer & Seating Company by the Minneapolis, St. Paul & Sault Ste. Marie on carload shipments of logs from Edgewater, Wis., to Birchwood was unreasonable to the extent that it exceeds 1.2 cents per 100 lbs. The latter rate had been in effect prior to the time when the shipments moved and the higher rate was only in effect through an error in the publication of the tariffs. Reparation was awarded.

The Railroad Commission of Wisconsin in the case of the John Hoffman & Sons Company v. Chicago, Milwaukee & St. Paul, Chicago & North Western, and the Green Bay & Western, found that the freight movement from Milwaukee to Black Creek, Shiocton and Seymour was unreasonably slow and that the complainant's competitors in other cities were given quicker service. The commission, therefore, ordered the defendants to so arrange their schedules that goods shipped by the complainant in less than carload lots over the route in question shall reach their destination within 84 hours from the time they are delivered to the carrier at Milwaukee.

REVENUES AND EXPENSES OF EXPRESS COMPANIES AS REPORTED TO THE INTERSTATE COMMERCE COMMISSION.

Name of Company.	Miles of line covered.	MONTH OF APRIL, 1912.						Operating expenses.	Net operating revenue (or loss). Taxes.	Operating income (or loss). Taxes.	
		Steam roads.	Other lines.	Express revenue.	Less express from operation.	Total operating revenues.	Maintenance.	Traffic portation.			
Adams Express Co.	32,432 ¹	\$2,921,003	\$1,537,884	\$1,427,813	\$1,093,102	\$82,704	\$1,260,264	\$167,549	\$20,595	\$146,954	
American Express Co.	56,118 ²	3,782,551	3,944,514	2,041,294	1,893,220	79,532	1,550,878	146,288	85,375	55,401	
Canadian Express Co.	6,122 ³	830	5,016	259,108	120,700	7,516	1,413	102,248	7,792	18,189	
Canadian Northern Express Co.	4,022 ⁴	22	61,992	63,663	24,797	38,866	3,722	16,583	6,165	19,359	
Globe Express Co.	2,904 ⁵	399	50,897	60,970	30,662	620	1,741	23,076	3,562	28,999	
Great Northern Express Co.	8,492 ⁶	230,776	234,256	141,398	92,858	1,976	1,370	70,012	4,476	77,834	
National Express Co.	7,310 ⁸	315	10,572	104,066	46,552	57,514	1,087	80,510	6,010	90,503	
Northern Express Co.	22	233,346	236,925	120,158	116,767	1,920	3,238	6,225	91,913	24,854	
Southern Express Co.	32,071 ⁹	821	1,479,874	1,508,027	787,988	720,039	16,331	7,355	64,473	556,169	
United States Express Co.	28,783 ¹⁰	10,129	3,954	1,757,350	1,784,389	849,152	935,237	30,085	818,175	914,381	
Wells, Fargo & Co.	63,642 ¹¹	2,792,863	2,884,957	1,396,175	1,448,782	79,466	1,063,120	92,221	1,267,550	181,632	
Western Express Co.	4,888 ¹²	12	10,290	104,220	54,270	1,192	2,464	36,570	4,120	44,282	
TEN MONTHS OF FISCAL YEAR, 1912.											
Adams Express Co.	32,432 ¹	4,843	\$27,833,447	\$28,185,592	\$14,422,470	\$13,763,122	\$708,529	\$88,967	\$10,955,460	\$837,934	\$12,590,890
American Express Co.	56,118 ²	2,388	34,641,917	36,087,008	17,101,049	18,983,559	504,096	303,639	14,829,637	1,691,174	16,906,566
Canadian Express Co.	6,122 ³	830	2,373,279	2,425,691	1,128,458	1,297,233	61,690	12,080	954,503	1,006,149	2,079,413
Canadian Northern Express Co.	4,022 ⁴	22	484,207	501,053	194,253	306,800	2,341	3,912	142,481	163,891	197,084
Globe Express Co.	2,904 ⁵	399	634,187	642,134	318,825	323,309	6,518	16,967	243,831	40,641	307,957
Great Northern Express Co.	8,492 ⁶	218	1,031,749	1,042,374	417,362	625,012	14,451	694,204	40,374	765,791	141,033
National Express Co.	7,310 ⁸	315	2,381,221	2,413,964	1,227,326	1,186,638	18,783	33,357	479,447	30,413	518,750
Northern Express Co.	22	925,570	925,570	1,241,964	1,241,964	1,241,964	776,916	60,027	889,053	297,555	45,000
Southern Express Co.	32,071 ⁹	821	12,781,297	13,026,079	6,375,086	6,650,993	90,759	4,354,042	5,262,696	1,388,297	140,450
United States Express Co.	28,783 ¹⁰	1,729,809	1,723,807	1,750,6180	8,154,145	9,352,032	332,236	8,240,077	9,229,972	123,478	1,418
Wells, Fargo & Co.	63,642 ¹¹	17,299	26,255,274	26,737,599	12,053,773	14,031,926	489,959	10,275,836	11,904,277	2,127,549	1,880,101
Western Express Co.	4,888 ¹²	12	925,570	942,449	493,235	449,214	11,534	28,923	345,004	424,111	50,711

Operated in previous period: Steam Roads—132,693; 2,843; 8,440; 7,1422; 7,186; 9 31,647; 10 28,854; 11 46,974; 12 4,844. Other Lines—1 3,780; 2 2,156; 4 360; 5 201; 6 816; 7 215; 8 3840;

u 4,777; u 8.

REVENUES AND EXPENSES OF RAILWAYS.

THREE MONTHS OF FISCAL YEAR 1913

Railway Officers.

Executive, Financial and Legal Officers.

The titles of the vice-presidents of the Norfolk & Western have been changed as follows: Wm. G. MacDowell, first vice-president, is now vice-president in charge of finances and accounts, with office at Philadelphia, Pa.; N. D. Maher, second vice-president and general manager, is now vice-president in charge of operation, with office at Roanoke, Va., and T. S. Davant, third vice-president and traffic manager, is now vice-president in charge of traffic, with office at Roanoke, Va., effective December 1.

Operating Officers.

R. M. Kleinhans has been appointed car accountant of the Missouri, Kansas & Texas, with headquarters at Denison, Tex.

John M. O'Day, whose appointment as superintendent of transportation of the Illinois Central, with headquarters at Chicago, has been announced in these columns, was born January 12, 1871, at Chicago. He was educated in the public schools of Chicago and began railway work in December, 1886, with the Chicago & Eastern Illinois as clerk in the offices of general superintendent and superintendent of transportation. He was appointed car accountant of that road on February 10, 1901, and was promoted to the position of superintendent of transportation on August 15, 1910. Mr. O'Day held this position until he resigned on November 16 to accept the position of superintendent of transportation of the Illinois Central at Chicago as noted above.



J. M. O'Day.

George W. Berry, whose appointment as general superintendent of the Illinois Central and Yazoo & Mississippi Valley, with headquarters at Memphis, Tenn., was announced in a recent issue, was born at Hornellsville, N. Y., February 25, 1871, and was educated in the common schools. He began railway work in June, 1884, as telegraph operator for the Erie. From 1888 to 1895 he was train dispatcher of that road, and was then for three years chief train dispatcher of the Rome, Watertown & Ogdensburg division of the New York Central & Hudson River. Mr. Berry was subsequently until 1903 chief train dispatcher, trainmaster and acting superintendent of the Queen & Crescent Route, and from 1903 to 1905, general manager of the Brunswick & Birmingham. He went to the Illinois Central in 1906 as chief train dispatcher and a year later was made trainmaster. He was appointed terminal



G. W. Berry.

superintendent at Chicago in 1910, which position he held until September, 1912, when he was made superintendent of transportation of that road and the Yazoo & Mississippi Valley, with headquarters at Chicago. He now becomes general superintendent at Memphis, Tenn., as noted above.

W. H. Johnson, assistant superintendent of the Winston-Salem Southbound, at Winston-Salem, N. C., has been appointed superintendent, with office at Winston-Salem, effective December 1.

R. P. Dayton, formerly superintendent of the Chesapeake & Ohio, has been appointed superintendent of the Chicago division of the Pere Marquette, with headquarters at Grand Rapids, Mich., succeeding F. Hartenstein, resigned.

Edward Horace DeGroot, who recently was appointed superintendent of transportation of the Chicago & Eastern Illinois, with headquarters at Chicago, was born March 22, 1871, at Galesburg, Ill., and was educated in the public schools. He began railway work May 13, 1886, as office boy in the general freight office of the Chicago, Burlington & Quincy, and shortly afterwards became a clerk in the general freight office of the Chicago & Eastern Illinois. He held various positions in train and yard service of that road from March, 1889, to November, 1898, and was then trainmaster at Chicago until October, 1902, with the exception of three months during the winter of 1898-1899, when he was chief train dispatcher



E. H. De Groot.

at Danville, Ill. Mr. Berry was then superintendent of the St. Louis and St. Elmo divisions, with headquarters at St. Elmo, Ill., until November, 1904, when he became superintendent and track supervisor of the Indiana division at Brazil, Ind. He was transferred to St. Louis, Mo., as superintendent of the St. Louis division and St. Louis terminals in April, 1908, from which position he was promoted to that of superintendent of transportation on November 16, as noted above.

Traffic Officers.

C. M. Teschemacher, local agent of the Chicago & Alton at Kansas City, Mo., has been appointed general agent, with office at Chicago.

D. E. Gilbert, traveling freight agent of the Wabash, with headquarters at Pittsburgh, Pa., has been appointed commercial agent, with office at Cleveland, O.

M. W. Levernier, chief clerk to the general agent of the Chicago & North Western at Denver, Colo., has been appointed traveling agent, with headquarters at Chicago.

R. A. Brand, freight traffic manager of the Winston-Salem Southbound, at Wilmington, N. C., has been appointed traffic manager, with office at Wilmington, effective December 1.

B. L. Birkholz has been appointed general agent of the El Paso & Southwestern System and the Morenci Southern Railway, with headquarters at New York, N. Y., effective December 1.

W. H. Eaton, traveling freight agent of the Baltimore & Ohio, at Uniontown, Pa., has been promoted to commercial freight agent, with headquarters at Uniontown. Thomas E. Conlon, private secretary to general freight agent at Pittsburgh, succeeds Mr. Eaton as traveling freight agent, with office at Uniontown.

G. C. Knickerbocker, traveling freight agent of the Wabash at Buffalo, N. Y., has been appointed division freight and passenger agent, with headquarters at Danville, Ill., succeeding

W. A. Sprott, deceased. R. A. Brown, contracting freight agent at Minneapolis, Minn., succeeds Mr. Knickerbocker at Buffalo, N. Y.

Wildred S. R. Cameron has been appointed traveling agent of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Vancouver, B. C., in charge of freight and passenger traffic in British Columbia—west of Field, including the lines of the Canadian Pacific, Nakusp to Kaslo and Gerrard to Lardo—succeeding Hector M. McGinnis, promoted.

Conrad E. Spens, general freight agent of the Chicago, Burlington & Quincy lines west of the Missouri river, with headquarters at Omaha, Neb., has been appointed assistant freight traffic manager of the Burlington System, with headquarters at Chicago. H. H. Holcomb, assistant general freight agent of the Illinois and Iowa district of the lines east, succeeds Mr. Spens.

Robert W. Boissevain, general European freight and passenger agent of the United Fruit Company at London, E. C., Eng., has been appointed general traffic manager, with headquarters at New York City, succeeding W. A. Schumacher, who in future will devote his entire time to the duties of general traffic manager of the Fruit Dispatch Company. George F. Wicken succeeds Mr. Boissevain as general European freight and passenger agent, with headquarters at London, Eng.

G. S. Rains, whose appointment as general freight agent of the Seaboard Air Line, with headquarters at Norfolk, Va., has been announced in these columns, was born on February 16, 1879 at Gainesville, Fla., and was educated at the grammar schools. He entered railway service on December 1, 1893, as office boy in the general freight office of the Florida Central & Peninsular at Jacksonville, Fla. When that company became part of the Seaboard Air Line in July, 1900, he was transferred to the general freight office of the Seaboard Line, at Portsmouth, Va., and was consecutively chief rate clerk, assistant chief clerk and chief clerk of rate department. In July, 1909, he was appointed assistant general freight agent of the Seaboard Air Line at Norfolk, Va., which position he held at the time of his recent appointment as general freight agent of the same road, as above noted.

Engineering and Rolling Stock Officers.

A. L. Moler has been appointed master mechanic of the Charlotte Harbor & Northern, in charge of motive power and equipment, with office at Arcadia, Fla., succeeding H. D. Jackson, resigned on account of ill health.

S. B. Fisher, chief engineer of the Missouri, Kansas & Texas, has been appointed chief engineer of construction, with headquarters at St. Louis, Mo. A. M. Acheson, chief engineer, with office at Dallas, Tex., has been appointed chief engineer of operation, with headquarters at Dallas.

W. J. McLean, who was appointed master mechanic of the Duluth, Rainy Lake & Winnipeg, a subsidiary of the Canadian Northern, in May, has been appointed master mechanic also of the Duluth, Winnipeg & Pacific, with headquarters at the West Duluth, Minn., shops.

James Shea, division roadmaster of the St. Louis & San Francisco at Wichita, Kan., has been appointed division roadmaster of the St. Louis, San Francisco & Texas and the Ft. Worth & Rio Grande, with headquarters at Ft. Worth, Tex., to succeed D. C. King, who takes the place of Mr. Shea at Wichita.

OBITUARY.

George H. Robertson, city passenger agent of the Wabash, with headquarters at Chicago, died at his residence in Glen Ellyn, Ill., on November 22, aged 66 years.

S. M. Shattuc, traveling passenger agent of the Baltimore & Ohio Southwestern, with headquarters at Denver, Col., died suddenly on November 17 at the age of 64 years.

Joseph D. Clark, formerly superintendent of the Mobile & Ohio, died on November 16 at Greenville, S. C. He was born in 1844 at Ann Arbor, Mich., and began railway work in 1861 as a freight brakeman on the Michigan Central. From May, 1892, to January, 1899, he was superintendent, purchasing agent and car

accountant of the Mobile & Birmingham, now a part of the Southern Railway, and was later general superintendent and purchasing agent of the same road. In May, 1899, he was appointed superintendent of the Jackson division of the Mobile & Ohio, and in October, 1900, was made superintendent of the Mobile division of the same road at Meridian, Miss.

H. W. Kapp, formerly general agent and superintendent of the Northern Central, died on November 22 at Atlantic City, N. J. He was born in 1844 at Marietta, Pa., and began railway work in 1862. Previous to 1866 he was laborer and brakeman on the Lackawanna & Bloomsburg, now a part of the Delaware, Lackawanna & Western. He then held various positions on the Philadelphia & Erie, now a part of the Pennsylvania Railroad, until his appointment in 1870 as assistant trainmaster of the Pittsburgh division of the Pennsylvania. From 1874 to 1883 he was trainmaster of the Baltimore division of the Northern Central and then from 1875 to 1883 was trainmaster of the Baltimore & Potomac and the Alexandria & Fredericksburgh, both now part of the Philadelphia, Baltimore & Washington. He was appointed superintendent of the Baltimore division of the Northern Central in 1883, and on February 1, 1905, was made general agent and superintendent of the same road, and general agent of the Philadelphia, Baltimore & Washington, at Baltimore. He retired from active service about four years ago.

Howard James, director of purchases of the Great Northern Railway and vice-president and general manager of the Great Northern Steamship Company and president of the Northern Steamship Company, and S. B. Plechner, purchasing agent of the Great Northern Railway, were killed on November 24, when the automobile in which they were driving upset near "North Oaks," the country home of James J. Hill, located about eight miles north of St. Paul, Minn. Mr. James was born August 12, 1862, and began railway work in December, 1882, as clerk in the general freight department of the St. Paul, Minneapolis & Manitoba. From 1886 to 1888, he was secretary to the general manager of that road and was then for one year treasurer and purchasing agent of the Eastern Railway of Minnesota. In September, 1889, he became superintendent of the Northern division of the St. Paul, Minneapolis & Manitoba and the Great Northern at Barnesville, Minn., and from 1892 to September, 1895, superintendent of the Minneapolis Union. He was then made purchasing agent of the Northern Steamship Company, and in August, 1899, purchasing agent of the Great Northern Railway. Mr. James became director of purchases of the Great Northern Railway, vice-president and general manager of the Great Northern Steamship Company and president of the Northern Steamship Company, in September, 1905. Mr. Plechner also had been with the Great Northern Railway for a number of years.

RAILROAD CONSTRUCTION IN CUBA.—A recent presidential decree grants to the North Coast Railway a subsidy of \$9,500 per mile of road to be built between Carbarien and Nuevitas, and also between Camaguay and Santa Cruz del Sur.

PASSENGER CAR VENTILATION IN GERMANY.—The rule as to windows in passenger cars in Germany has been that they must not be opened on both sides of the car without the consent of all occupying the compartment. Now on city and suburban trains in Berlin neither window in the front compartment of each car may be opened without such unanimous consent.

MOTOR CAR SERVICE IN BAVARIA.—In Bavaria the administration which operates the railways maintains also an automobile service on 53 routes permanently, and on 8 more during the summer, carrying passengers and mail and parcels. The service has been profitable, the expenses per motor car mile being 15 cents and the earnings nearly 20 cents, and the net for all the lines amounting to \$88,000.

BRAZILIAN RAILROAD CONSTRUCTION.—The president of Brazil has signed a decree authorizing the minister of public works to open a credit of \$500,000 for expenses connected with the construction of the branch line of the Central of Brazil Railway from Itacurussa to Angra, and another credit of \$400,000 to cover the expenses of the construction of the Centro line of the Central of Brazil Railway in the direction of Montes Claros.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

THE RUTLAND is in the market for 8 locomotives.

THE ATLANTA & ST. ANDREWS has ordered 1 ten-wheel locomotive from the Baldwin Locomotive Works.

THE LOUISIANA & NORTHWEST has ordered 1 ten-wheel locomotive from the Baldwin Locomotive Works.

THE TALLULAH FALLS RAILWAY has ordered 1 consolidation locomotive from the Baldwin Locomotive Works.

THE ASHLAND COAL & IRON RAILWAY has ordered 1 six-coupled double ender locomotive from the Baldwin Locomotive Works.

BUTLER BROTHERS, St. Paul, Minn., have ordered 3 six-wheel switching locomotives from the Baldwin Locomotive Works.

CAR BUILDING.

THE MINNEAPOLIS & ST. LOUIS is in the market for 3,000 box cars.

THE CHICAGO, BURLINGTON & QUINCY has ordered 1,500 freight cars.

THE RUTLAND has ordered 5 passenger coaches from the Osgood Bradley Car Company.

THE NORFOLK & WESTERN is taking bids on 1,000 hopper cars, 500 box cars, and 500 stock cars.

THE DENVER, NORTHWESTERN & PACIFIC is in the market for 1,000 box cars and 400 fifty-ton gondola cars.

THE CHESAPEAKE & OHIO is in the market for 3,000 seventy-seven-ton hopper cars.

IRON AND STEEL.

THE PHILADELPHIA & READING has ordered 10,000 tons of rails from the Maryland Steel Company.

GENERAL CONDITIONS IN STEEL.—Shipments of the United States Steel Corporation for the current month are estimated as high as 1,100,000 tons, or about the same as reported in the preceding month. Shipments would have been larger had the corporation been able to secure sufficient cars. As it is, the November figure will be at the rate of 13,200,000 tons per year. The largest shipments in a full year reported by the United States Steel Corporation were in 1910, when 10,734,000 tons of finished steel were sold. There has been no falling off in steel buying. The demand so far this month has been considerably in excess of that reported in any corresponding period since the organization of the corporation.

SIGNALING.

The Louisville, Henderson & St. Louis is to install a four-lever mechanical locking machine at its drawbridge over Green river.

The Cincinnati, Hamilton & Dayton has informed the Indiana State Railroad Commission that it will proceed at once to install automatic block signals, as ordered by the commission, between Glenwood and the Ohio state line. This work will be done within the next month; and the company also stated that the order issued by the commission, to be carried out next year, would be complied with. The Indiana commission announces that all of the interurban electric roads, with possibly one exception, which were recently ordered to install block signals by July, 1913, are making contracts for the necessary material. The orders issued by the commission applying to interurban roads cover an aggregate of 280 miles of line. The commission has ordered the Kokomo, Marion & Western Traction Company to install automatic block signals on five miles of its road from Kokomo westward, the work to be done by July next.

Supply Trade News.

Charles H. Burt has been made general sales manager of the Robinson Coupler Company, Washington, D. C., with office in that city.

The erecting plant of the American Car & Foundry Company at Terre Haute, Ind., was destroyed by fire on November 18. The loss is estimated at between \$75,000 and \$100,000.

The Chicago Car Door Company has received an order from the New York, Ontario & Western for its car door equipment for 300 box and 50 stock cars, also several other smaller orders from different roads.

Walter A. Johnson has been made manager of the Atlanta, Ga., office of the Independent Pneumatic Tool Company, Chicago, succeeding John J. Keefe, who died on November 20, from an attack of typhoid fever.

The Alexander Milburn Company, Baltimore, Md., maker of various kinds of acetylene apparatus, has moved its general offices from 505-7 West Lombard street to larger quarters at 1420-6 West Baltimore street.

Charles L. Wright, chief of the Briquetting division of the Government Bureau of Mines, has gone to the Roberts & Schaefer Company, Chicago, to take charge of its coal briquetting department. This company has acquired an operating plant where it is prepared to make briquetting tests for prospective clients.

Annual Report of the Pullman Company.

The income account of the Pullman Company, as shown by the annual statement for the fiscal year ending July 31, 1912, is as follows:

REVENUE.	
From earnings of cars.....	\$37,630,485.90
From manufacturing, rentals, interest, etc.....	2,589,262.13
	\$40,219,748.03
EXPENSES.	
Operating expenses, repairs of cars, taxes and insurance	\$22,608,177.66
Proportion of net earnings paid other interests in Sleeping Car Associations controlled and operated by this company.....	324,013.93
Depreciation on cars wrecked and destroyed or otherwise disposed of, and on cars transferred from Standard to Tourist, etc.....	465,462.30
Depreciation on cars in general.....	4,393,635.86
Reserve for further depreciation on cars in general	2,000,000.00
Dividends declared	9,599,460.00
	39,390,749.75

Excess of Revenue over Expenses, applicable to Surplus Account	\$828,998.28
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The item of \$2,000,000 for further depreciation is in anticipation of the heavy depreciation caused by the necessity for more expensive equipment. The total assets of the company amounted to \$150,885,991, some of the principal items being: 5,979 cars and equipments, \$98,246,371; operating supplies, linen, etc., \$4,597,772; securities, \$9,214,167; cash, \$11,893,523; and manufacturing department plants and investments, \$20,136,408. The amount invested in other car associations controlled and operated by the company was \$1,088,041, which brings the total number of cars owned and controlled up to 6,229. The total liabilities were \$148,001,610, leaving a net surplus of \$2,884,381. The capital stock is \$120,000,000. The accounts payable amounted to \$7,248,417; reserves for depreciation, to \$20,497,393; and other reserve and adjustment accounts, to \$255,799.

Following the annual meeting on November 13, President John S. Runnels gave out a statement showing that the total number of passengers carried during the year was 24,256,000, as compared with 23,182,000 in 1911, an increase of 4.6 per cent. The average number of men on the payrolls of the manufacturing department was 7,645, and wages paid amounted to \$6,705,000. The average earnings per passenger for the year showed a decrease of 2.3 per cent., caused principally by the reduction of 20 per cent. in the rates for upper berths.

TRADE PUBLICATIONS.

VISES.—The Emmert Manufacturing Company, Waynesboro, Pa., has published a small illustrated folder on its vises, giving descriptions, dimensions and prices.

UNIONS.—The Jefferson Union Company, Lexington, Mass., has published two folders, one entitled Thomas Jefferson, and the other, Napoleon Bonaparte, in which it gives brief sketches of the lives of these men and points out the advantages of Jefferson unions.

MOTOR STARTERS.—The General Electric Company, Schenectady, N. Y., has devoted bulletin No. A 4039 to its direct current motor starting and speed regulating rheostats and panels. This bulletin supersedes previous bulletins Nos. 4600, 4559, and 4532 on this subject.

WELDING APPARATUS.—The Northwestern Blau-Gas Co., St. Paul, Minn., has issued an illustrated pamphlet describing the blau-gas system of welding, cutting and brazing. The apparatus used with this gas is described and illustrated, the description represented showing its use for various kinds of work.

FIRE EXTINGUISHERS.—The H. W. Johns-Manville Company, New York, has published a small folder entitled A Fire Department in Your Building, illustrating, describing and giving the prices of its liquid chemical fire extinguishers, its chemical fire engines, and its dry powder chemical fire extinguishers.

PIPE.—The National Tube Company, Pittsburgh, Pa., has devoted bulletin No. 11 to its National pipe. This bulletin discusses the advantages of the Spellerizing process for the smaller sizes of pipe; 4 in. and under. The name "National" now appears at regular intervals on every length of welded tubular product made by this company.

INCLINED ELEVATORS.—The Otis Elevator Company, New York, has published an illustrated catalog of its inclined elevators for quick handling of heavy volumes of merchandise. This catalog includes descriptions, diagrams and illustrations of the various types of these elevators and gives some interesting facts about their operation at docks, freight houses, etc.

AUTOMATIC CYLINDER COCK.—The Watertown Specialty Company, Watertown, N. Y., has published a small illustrated folder entitled The Watertown Automatic Cylinder Cock. It is claimed that this device prevents water from accumulating in the cylinder, even though the engineman fails to open the drain cock, and thereby guards against blow-outs, cracked and strained cylinder heads.

MONORAIL SYSTEM.—The Shaw Electric Crane Company, Muskegon, Mich., has published bulletin No. 73 entitled A New Departure in Monorail Systems, a Track Switch Without a Moving Part. The novel feature of this system is that the switch does not have to be set for the desired direction of travel. The trolleys run through the switch in all directions without stopping. The catalog is well illustrated and includes tables of speeds and horse powers and of track data.

FUEL ECONOMIZERS AND VENTILATORS.—The Green Fuel Economizer Company, Matteawan, N. Y., has published catalog No. 145, entitled What We Make, describing and giving the dimensions and prices of its fuel economizers, both standard and special, mechanical draft outfits, heating, ventilating and drying outfits, hot blast heaters, steel plate fans, motor and engine driven fans, cast iron volume blowers, low speed and standard speed planing mill exhausters, fan and blower wheels, ventilator wheels, propeller fans and vertical and horizontal engines.

TURBINES.—The De Laval Steam Turbine Company, Trenton, N. J., has published a handsome 120 page illustrated catalog entitled De Laval Steam Turbine, Multi Stage Type. This catalog is divided into five sections as follows: The Field of the Single Stage Turbine; Considerations Affecting Choice of Type of Turbine; Design and Construction of De Laval Multi Stage Turbine; the De Laval Double Helical Speed Reduction Gear; and Comparisons of De Laval Multi Stage Geared Turbines with Reciprocating Engines. A number of pages are devoted to a discussion of the best means of reconciling the high speed natural to steam turbines with the low or modern speed of driven machinery. The catalog also contains a chart accompanied by a steam scale by means of which the energy available from the expansion of steam between given limits can be read off directly, as heat units, velocity of the steam in feet per second, duty in foot pounds per 1,000 lbs. of steam, and pounds of steam consumed per horse power hour.

Railway Construction.

AKRON, CANTON & YOUNGSTOWN.—Contracts have been given to M. S. Moriarty & Co., East Akron, O.; to the Lucius Engineering Company, Pittsburgh, Pa., and to the P. T. McComb Company, Akron, to build from Erie Junction, Ohio, to Maine street, Akron, two miles. Surveys are being made for an extension from Mogadore to Youngstown, forty-two miles.

BOSTON & MAINE.—An officer of the Vermont Valley writes that a contract has been given to Holbrook, Cabot & Rollins, Brattleboro, Vt., to build from the present southern terminus at Bridge street, Brattleboro, to a connection with the Connecticut River extension from South Vernon to Brattleboro, three-quarters of a mile.

BAKER RIVER & SHUKSAN.—An officer writes that surveys have been made for an extension from Bradsberry, Wash., to Shuksan, 12 miles.

CANADIAN PACIFIC.—An officer writes that contracts have been given for work on the Esquimalt & Nanaimo from McBride Junction, B. C., to Courtenay, 45 miles, as follows: To Culliton Bros., McBride Junction; to Moore & Petrich, Victoria, and to C. Hoard, Victoria. Surveys for an extension from Courtenay to Campbell River, 30 miles, have been made.

CARTHAGE & COPENHAGEN.—An officer writes that this company has projected an extension from Copenhagen, N. Y., to Camden, 46 miles.

CENTRAL RAILWAY OF CANADA.—An officer writes that a contract has been given to C. J. Wills & Sons, Montreal, Que., to build from Montreal to Midland, 342 miles, and an additional contract has been given to H. Armstrong, Ste. Agathe, Que., to build from Ste. Agathe to St. Andrews, 47 miles. F. Stuart Williamson, chief engineer, Montreal.

CHERRYVALE, OKLAHOMA & TEXAS.—On the section from Caney, Kan., to Vinita, Okla., 62 miles, grading work is about half finished; all construction work has been suspended for the present. The Continental Construction Company, Caney, has the contract. B. J. Dalton, chief engineer, Lawrence, Kan.

CHICAGO & NORTHERN INTERURBAN.—Incorporated in Illinois with \$100,000 capital and headquarters at Chicago, to build through the townships of Niles, Maine, and Wheeling, in Cook county, to Chicago. The incorporators include W. A. Miller, O. J. Smith and E. L. Starbird, all of Chicago.

CHICAGO & NORTH WESTERN.—An officer writes that work is now under way on the St. Louis, Peoria & North-Western from Peoria, Ill., to Girard, about 90.6 miles. Winston Brothers, Minneapolis, Minn., has the grading contract, and the Cleary White Construction Company, Chicago, has the contract for the concrete work.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—See an item under Railway Financial News.

COLORADO & SOUTHERN.—The report of this company for the year ended June 30, 1912, shows that \$2,045,420 was spent for additions to the property, including the substitution of permanent bridges for wooden structures; building new lines from Southern Junction, Colo., to Walsenburg Junction, and from Wellington, Colo., to Cheyenne, Wyo.; betterments to line from Fort Collins, Colo., to Dixon; putting in additional spur and industrial tracks, also additional yard tracks and sidings; buying land at Denver, Colo., and at Cheyenne, Wyo., and various other additions and betterments. During the year the company built 12.40 miles of main line in Wyoming and 66.2 miles in Colorado, also 0.94 miles of yard tracks and sidings in Wyoming, and 16.29 miles in Colorado.

COLUMBUS, CHATTAHOOCHEE VALLEY & GULF.—An officer writes that this company has projected a line from Eufaula, Ala., northwest to Anniston, thence east to Carrollton, Ga., 200 miles. Josiah Flournoy, chief engineer, Columbus, Ga.

DENVER, LARAMIE & NORTHWESTERN.—An officer writes that surveys have been made, and the line adopted for an extension from Greeley, Col., to Kent, Wyo., 164 miles.

DENVER & RIO GRANDE.—A contract has been given to the Utah Construction Company, Ogden, Utah, for grading the new

double-track detour line over Soldier Summit, where the railroad crosses the Wasatch range in Utah. The value of the contract is \$1,500,000. This change involves the building of 15 miles of new line and reduces the grade from 4 to 2 per cent. Construction work will commence at once; the contract calls for completion of the work by August 1, 1913. The work will be very heavy, and will include one tunnel 255 ft. long. There will be no bridges, but numerous concrete arches. The new line will be laid with 90-lb. rails. (November 22, p. 1013.)

EAST ST. LOUIS, COLUMBIA & WATERLOO (Electric).—An officer writes that this company has finished work from East St. Louis, Ill., to Waterloo, on 22.5 miles, and on 0.1 mile of second track in East St. Louis. Baxter L. Brown, chief engineer, 610 Laclede building, St. Louis, Mo.

EL PASO & SOUTHWESTERN.—An officer writes that work is now under way by the MacArthur Company, Chicago, on an extension from Louis Springs, Ariz., to Fort Huachuca, 14.3 miles.

ESQUIMALT & NANAIMO.—See Canadian Pacific.

EVANSVILLE RAILWAY COMPANY (Electric).—An officer writes that it has not yet been definitely decided to build from Henderson, Ky., east to Owensboro. If the company decides to build the line the work will probably be carried out by the company's men. W. A. Parson, general manager, Evansville, Ind.

FELLSMERE RAILROAD.—Grading work is now under way on an extension from mile 2.49 west of Fellsmere, Fla., to mile 8.72, a distance of 6.23 miles; a further extension is projected for 2.39 miles.

GRAND TRUNK.—An officer writes that this company is building a line from Cass City, Mich., to Bad Axe, 18½ miles.

GULF, FLORIDA & ALABAMA.—Work is now under way by the Eastern Construction Company, Pensacola, Fla., on an extension from Local, Ala., to Mexia, 20 miles. The company plans to build a further extension in 1913 from Mexia to Pine Hill, 60 miles.

HOOSAC TUNNEL & WILMINGTON.—An officer of this company, which operates a line from Wilmington, Vt., to Hoosac Tunnel, 24 miles, writes that the company is changing the line from narrow gage to standard, and expects the work to be completed before December 31 of this year.

IDAHO NORTHERN.—This road has been extended from Emmett, Idaho, north to Montour, 14 miles.

ILLINOIS CENTRAL.—An officer writes that a contract has been given to John Scott & Sons, St. Louis, Mo., to build a 7-mile extension of the Bloomington Southern.

LIBERTY WHITE.—This road has been extended from Harveytown, Miss., to Tylertown, five miles.

LONG ISLAND RAILROAD.—This company plans to lay 3.06 miles of fifth and sixth tracks from Woodside, N. Y., to Winfield Junction.

MANATAWNEY RAILROAD.—An officer writes that work is now under way from the Manatawney Iron Mines, Pa., to Douglassville, 10 miles. Frank Highley, Pottstown, has the contract. A. E. Leahman is chief engineer, Philadelphia.

MARIETTA & LAKE.—Surveys are now being made for a line from Old Washington, Ohio, to Freeport, with branches, in all about 30 miles. The company expects to begin construction work in April of next year.

MESKILL & COLUMBIA RIVER.—An officer writes that work is now under way building from Meskill, Wash., to Gray River, 30 miles. J. C. Dolphin, secretary, Meskill.

MINGO VALLEY & MONONGAHELA RIVER.—Pittsburgh & Lake Erie.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—The report of this company for the year ended June 30, 1912, shows that during the year the extension from Frederick, Wis., to Duluth, was completed. The line between Drake, N. D., and Fordville, 130 miles, on which work was started in 1910, was to be ready for traffic about October 1. To provide for new terminals at Chicago, the Central Terminal Railway Company of Illinois was incorporated, and contracts have already been let for the construction of concrete freight houses on land bought on the west

side of the Chicago river, between Canal and Clinton streets, Chicago, and extending from Twelfth street to West Fifteenth place. Land has also been secured from Canal street to Halstead street for the purpose of connection with the Baltimore & Ohio Chicago Terminal Railroad, and land has also been secured at Fiftieth street for yards, etc. It is expected that the improvements will be completed and ready for use when required.

MONTOUR RAILROAD.—According to press reports the Pittsburgh Coal Company recently sold \$4,000,000 of bonds, the proceeds of which are to be used for extending the Montour Railroad through a coal section from the present terminus at North Star, Pa., into Washington county, thence back into Allegheny county to a point south of Homestead where connection is to be made with the Bessemer & Lake Erie.

NASHVILLE-GALLATIN INTERURBAN.—This company has finished work on the line from Nashville, Tenn., to Gallatin, 23 miles.

NEBRASKA, KANSAS & SOUTHERN.—An officer of this company, which was organized to build from Garden City, Kan., northeast to Stockton, about 165 miles, writes that about 15 miles from Garden City has been completed, and that the prospects are favorable for building from the present end of track to Stockton, 150 miles, next year. B. L. Brown is chief engineer, 610 Laclede building, St. Louis, Mo.

NEZPERCE & IDAHO.—An officer writes that surveys are being made for an extension from Vollmer, Idaho, to Lewiston, 55 miles.

NEWARK & MARION.—An officer of this company, which operates a line from Marion, N. Y., to Newark, nine miles, writes that surveys are being made for an extension from Marion to Williamson, 6.2 miles.

NEW ORLEANS, TEXAS & MEXICO.—See St. Louis & San Francisco.

NORTH YAKIMA & VALLEY.—Work is now under way by the Valley Construction Company building an extension from Cowiche Junction, Wash., to Triton, 12 miles.

NORTHERN PACIFIC.—A contract has been given to Guthrie, McDougall & Company, it is said, for grade separation work in Spokane, Wash. It is understood that the contract is worth \$1,000,000. An officer is quoted as saying that the work will be started at the earliest possible date and will be pushed to completion. (November 22, page 1014.)

OTTAWA RIDEAU LAKES & KINGSTON (Electric).—This company, which was recently organized, has entered into a contract with an English syndicate to construct and equip a line on which construction work is to be started in the spring of 1913. Surveys have been made from Ottawa, Ont., southwest to Kingston, 102 miles; also for a branch from Lombardy northwest to Lanark, 23 miles. U. L. Upson, general manager, 248 Albert street, Ottawa.

PACIFIC & IDAHO NORTHERN.—An officer writes that an extension has been projected from New Meadows, Idaho, to Riggins, 35 miles.

PITTSBURGH & LAKE ERIE.—According to press reports plans are being made to build under the name of the Mingo Valley & Monongahela River, a bridge over the Monongahela river at Mingo Creek between Monongahela, Pa., and Clairton, and to construct a line along the creek back of the river north to Carnegie, where a connection is to be made with the Pittsburgh, Chartiers & Youghiogheny. A branch is to be built from a point a few miles from the Monongahela river along Mingo Creek west and south to a point on Ten-Mile Run, to Ten-Mile in Washington county. These two branches will develop new coal fields.

ST. LOUIS, ARKANSAS & PACIFIC.—An officer writes that construction work has just been started on the line from Harrison, Ark., southwest to Fallsville, in Newton county, with a branch from Jasper northeast to Pontiac, Mo., in all about 100 miles. J. H. Kuder, secretary, Harrison, Ark.

ST. LOUIS BELT, ILLINOIS & EASTERN TRACTION.—Incorporated in Missouri, with a capital of \$600,000, to build a line in Illinois and about 30 miles in St. Louis county, Missouri. The

surveys have not yet been completed and rights of way are being secured. J. D. Houseman, general manager, St. Louis, Mo.

ST. LOUIS & OKLAHOMA SOUTHERN.—An officer writes that work is now under way from Bismarck, Mo., to Bunker, 50 miles. The Hamilton-Ryan Construction Company, St. Louis, are the contractors. An extension is eventually to be built via Honeywell, towards Tyler, Tex. H. Rohwer, consulting engineer, St. Louis.

ST. LOUIS, PEORIA & NORTH-WESTERN.—See Chicago & North Western.

ST. LOUIS & SAN FRANCISCO.—The report of this company for the year ended June 30, 1912, shows that the Brownwood North & South, extending from Brownwood, Tex., to May, 17.65 miles, was completed and put in operation in November, 1911. On the New Orleans, Texas & Mexico, the Erwinville branch extension, 12.88 miles provides facilities for extensive rice and sugar cane fields and sugar mills. This division will be greatly benefited by the recent construction of a new tributary line, the San Benito & Rio Grande Valley, extending north and south of San Benito, Tex., 43.6 miles of which are now in operation, and 22 miles additional north and south of Mission, Tex., are under construction. The company has leased the Louisiana Southern Railway operating about 45 miles of main line, and during the past year 20.09 miles of additional main tracks were built. During the year 16.14 miles of new industrial and side tracks were constructed, and the St. Louis & San Francisco spent a large amount of money for betterment work including additional ballast.

SAN BENITO & RIO GRANDE VALLEY.—An officer writes that surveys are now being made on the following sections: Fernando, Tex., to Alton, 47 miles; La Paloma to Brownsville, 15 miles; Santa Maria to La Lometa, 29½ miles; San Benito to Point Isabel, 24 miles, and from San Benito to Fernando, which is to be a loop line, 20 miles. A contract has been given to the Hidalgo Construction Company, San Benito, for the work.

SAN LUIS SOUTHERN.—An officer writes that an extension has been projected from Jaroso, Col., to Questa, N. Mex., 20 miles.

SCHOLTEN BROTHERS CEDAR COMPANY'S LINES.—This company is building an extension from Bend, Tex., to cedar forests. A. Scholten, Lometa, is president and E. Scholten is treasurer. (October 4, page 655.)

SPOKANE & BRITISH COLUMBIA.—An officer writes that surveys have been made to build from Republic, Wash., to Spokane, 140 miles.

TALLULAH FALLS.—An officer writes that on account of the Georgia Power Company erecting a dam at Tallulah Falls, Ga., which would overflow the present track, the company is carrying out grade revision work from Tallulah Falls, crossing the river at a height of about 110 ft. A modern steel bridge with reinforced concrete piers is being built at that place. The grade revision extends over 5,951 ft., making the new route 1,000 ft. shorter than the old line.

TEMISKAMING & NORTHERN ONTARIO.—An officer writes that surveys are being made for an extension from Iroquois Falls, Ont., to Abitibi river, 6.5 miles.

TIDEWATER SOUTHERN (Electric).—This company has finished work on the line from Stockton, Cal., to Modesto, 31 miles, and is building an additional 17 miles from Modesto to Turlock.

TOLEDO & INDIANA (Electric).—An officer writes that this company has projected an extension from Bryan, Ohio, north to Montpelier, 10 miles.

TORONTO & YORK RADIAL (Electric).—An officer writes that a contract has been given to W. H. Thomson, Toronto, Ont., for building 0.87 miles of railway at the new terminal at North Toronto, and 0.66 miles of second track is being laid at Bond Lake, county of York.

TRINITY VALLEY & NORTHERN.—An officer of this company which operates a 12-mile line from Dayton, Tex., south, writes that surveys have been made for an extension to Lamb, seven miles.

WATAUGA RAILWAY.—See Yadkin River.

WATERLOO, CEDAR FALLS & NORTHERN (Electric).—This company has finished work between Waterloo, Ia., and LaPorte City, 18.41 miles, and has given a contract to R. A. Elzy, Marshalltown, Iowa, to build an extension, on which work is now under way from LaPorte City to Urbana, 18.6 miles.

WAYCROSS & WESTERN.—Work is now under way building an extension from Arabia, Ga., to Sirmans, eight miles, and a further extension is projected from Sirmans to Ray's Mill.

WHITE RIVER.—A branch line is being built by the Bayonne Lumber & Manufacturing Company of Pittsfield, Vt., from Pittsfield, to Stockbridge, seven miles, and another branch is being built by the Eastern Talc Company, Rochester, Vt., from the Eastern Talc Company's mines to lower Rochester, 4 miles.

YADKIN RIVER.—An officer of the Watauga Railway writes that surveys have been made from Wilkesboro, N. C., to Boone, 51.6 miles, and from Elkville Junction to Lenoir, 17.7 miles. Work is now under way from Brownsford to Grandin, 16 miles, and from Elkville Junction to Darby, eight miles. The work is being done by the company's forces. Some contracts may be let in a short time.

RAILWAY STRUCTURES.

ALBANY, GA.—An officer of the Central of Georgia writes that the contract given recently to A. M. Walkut, Richmond, Va., is for putting up a union passenger station one story high, 48 ft. x 224 ft., at Albany, to cost \$50,000. The new structure is to have brick walls, concrete foundations, reinforced concrete floors, and clay tile roof. (November 22, p. 1015.)

BARNESVILLE, GA.—An officer of the Central of Georgia writes that the contract given recently to A. M. Walkut, Richmond, Va., is for building a one-story passenger station at Barnesville, to be 14 ft. x 96 ft., and to cost \$15,000. The new structure is to have brick walls, concrete floor and foundations and clay tile roof. The work has already been started. (September 22, p. 1015.)

CLIFTON, ARIZ.—The Arizona & New Mexico has prepared plans for a \$30,000 passenger station.

FT. WAYNE, IND.—The Pittsburgh, Ft. Wayne & Chicago has awarded a contract to George B. Swift & Company, Chicago, for a new passenger station, which it is said will cost \$200,000, exclusive of track elevation.

TEMPLE, TEX.—The Missouri, Kansas & Texas has announced that work will be started on the erection of a modern passenger station shortly after the first of the year, to cost about \$60,000.

VALE, ORE.—The Oregon Eastern, which is controlled by the Oregon Short Line, now building west from Vale, Ore., will put up 20 new steel and concrete bridges. Two of the bridges are to have four spans of 80 ft. each, another is to have two spans of 100 ft. each, and a fourth bridge three spans of 100 ft. each, the other bridges will all be about the same size as the fourth bridge. The bridges will be built over the Malheur river in Malheur canyon. All the structures are to be of the deck plate girder type, mounted on concrete piers.

RAILROAD CONSTRUCTION IN HAYTI.—Work on the Northern Railroad toward Saint Marc is progressing rapidly. It is expected that the line from there to Port au Prince will be open for traffic by January 1, 1913.

SURVEYS FOR BRAZILIAN RAILWAYS.—Final surveys of the section of the Tocatins Railway lying between Cameta and Alcoaba has been commenced at both ends of the line. Similar surveys are being made between Praia da Rainha and Sao Joas de Araguaya, the confluence of the rivers at Araguari and Tocatins.

DAYLIGHT WORKING HOURS IN HONDURAS.—In Belize, British Honduras, the English "daylight saving scheme" has been put in effect. To more economically adjust the ordinary working hours of the people to the hours of daylight, during the season when days are short, all of the clocks in the city were set ahead 20 minutes; so the amount of daylight time which otherwise might be wasted in the morning in making one's toilet can be availed of after business hours for outdoor games.

Railway Financial News.

ATLANTIC COAST LINE.—Stockholders on November 19 voted to approve the recommendation of the directors to authorize \$6,000,000 additional stock. Stockholders are to be offered the right to subscribe at par to the extent of 10 per cent. of their holdings. The proceeds of the sale are to be used to pay for work previously authorized by the board of directors.

BALTIMORE & OHIO.—Stockholders have voted to approve the merger of the Pittsburgh & Connellsville, the Berlin Railroad, the Salisbury Railroad, the Mt. Pleasant & Broad Ford, the Ohio River & Baltimore Short Line, the Somerset & Cambria, the Glenwood Railroad, the Fayette County Railroad, the Ohio River Railroad, the Parkersburg Branch Railroad, the Ripley & Mill Creek, the Ravenswood, Spencer & Glenville and the Huntington & Big Sandy.

BOSTON & MAINE.—The Maine Railroad Commission has approved an increase of \$10,663,700 additional common stock, and has reserved decision on the application to issue \$7,500,000 bonds.

BOWDEN LITHIA SPRINGS SHORT LINE.—We are requested to state that although the name of this company appears in certain lists of operating roads, the company no longer exists, and the two miles of railroad that it once owned is no longer used as a common carrier. It is owned by the Bowden Lithia Springs Water Company, and is used for the sole purpose of carrying water from its springs to the line of the Southern Railway at Lithia Springs.

CHICAGO, PEORIA & ST. LOUIS.—The property of the old railway company has been sold at foreclosure to the reorganization committee for \$750,000.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—At a special meeting of stockholders of this company, the following propositions were authorized: An extension from Terre Haute, Ind., to the line between Indiana and Illinois, following the route of the Cairo, Vincennes & Chicago; purchase by the company of all railroad properties and franchises of the Cairo, Vincennes & Chicago; purchase of railroad and properties of the Cincinnati & Springfield Railway Company, the Columbus, Springfield & Cincinnati Railroad Company, the Findlay Belt Railway Company, the Harrison Branch Railroad Company and the Chicago, Indianapolis & St. Louis Short Line Railway Company; the execution of a mortgage or mortgages by the company covering the railroads and properties referred to above, such mortgage or mortgages to be given as further security for the company's general mortgage bonds or for any bonds secured by mortgage or pledge of the capital stock of the companies that are mentioned above.

CLEVELAND & PITTSBURGH.—This company, which is a subsidiary of the Pennsylvania, has made application to the Ohio Public Service Commission for permission to issue \$2,019,100 additional stock to reimburse the Pennsylvania for improvements and extensions.

COLORADO MIDLAND.—In view of the default by this company on one of its outstanding notes, a committee consisting of J. N. Wallace, chairman; James N. Jarvie, and Harry Bronner, of Hallgarten & Co., urges the holders of the first mortgage 4 per cent. bonds of 1897 (\$8,946,000 outstanding) to unite for mutual protection by depositing their bonds at once with the Central Trust Company, New York, as depositary. Landon K. Thorne is secretary to the committee.

DES PLAINES VALLEY.—This subsidiary of the Chicago & North Western has filed a mortgage securing \$2,500,000 5 per cent. bonds.

GRAND TRUNK PACIFIC.—This company has filed with the National Trust Company, Ltd., as trustee, a new first mortgage securing an issue of £238,600 (\$1,193,000) first mortgage 4 per cent. bonds, dated July 31, 1912, and due February 15, 1942; guaranteed principal and interest by the province of Alberta. This is a separate issue on the Alberta Coal Branch, 58 miles, at \$20,000 per mile.

HOCKING VALLEY.—H. E. Huntington has been elected a director and member of the executive committee, succeeding General Thomas H. Hubbard, resigned.

HUNTINGDON & BROAD TOP.—More than a majority of the preferred and common stock of this company has assented to the formation of a voting trust to bring about a sale of the property on a basis of not less than \$25 per share for the common and \$50 per share for the preferred stock.

INTEROCEANIC RAILWAY OF MEXICO.—The directors of this company have declared the full 5 per cent. dividend for the year on the £1,400,000 (\$7,000,000) first preference, non-cumulative 5 per cent. stock. This dividend has been paid semi-annually, but last May the payment was deferred, owing to the disturbed political condition, until the accounts for the year had been made up. On the £1,000,000 (\$5,000,000) second preference, 4 per cent. stock, 2 per cent. was declared as compared with 4 per cent. in 1911 and 1910, and 1 per cent. in 1909.

INTERBOROUGH RAPID TRANSIT.—The Guaranty Trust Company, New York, as trustee, will receive sealed offers up to noon, January 7, for the sale to it at not exceeding 105 and interest for account of the sinking fund of series A, 45-year bonds due November 1, 1952, to exhaust the sum of \$352,314.

MISSOURI, KANSAS & TEXAS.—The M. K. & T. of Texas is to apply to the Texas legislature for permission to lease for 25 years, which includes an option to purchase, the Texas Central, the Wichita Falls & Northwestern, the Wichita Falls & Southern, the Wichita Falls & Wellington, the Wichita Falls Railway, the Denison, Bonham & New Orleans, the Dallas, Cleburne & South West, and the Beaumont & Great Northern.

NEW YORK CENTRAL LINES.—The New York Central & Hudson River, the Lake Shore & Michigan Southern, the Michigan Central, the Cleveland, Cincinnati, Chicago & St. Louis, the Pittsburgh & Lake Erie and the Toledo & Ohio Central have authorized a joint equipment trust for \$24,000,000.

NEW YORK, NEW HAVEN & HARTFORD.—J. P. Morgan & Co., the First National Bank and the Commercial City Bank, all of New York, are offering \$40,000,000 one-year 5 per cent. notes of December 2, 1912, at 99½.

NEW YORK, PHILADELPHIA & NORFOLK.—Stockholders will vote on December 10 on the question of authorizing an increase in capital from \$2,500,000 to \$4,000,000.

OTTAWA TERMINAL RAILWAY.—Application has been made by this company, which is a subsidiary of the Grand Trunk, to the Dominion Parliament for permission to increase its bond issue from \$3,000,000 to \$6,000,000.

ST. LOUIS, ROCKY MOUNTAIN & PACIFIC.—A second dividend of 1¼ per cent. has been declared on the \$1,000,000 5 per cent. non-cumulative preferred stock, payable December 31. A dividend of 1¼ per cent. was paid on August 31.

SEABOARD AIR LINE.—The following new directors have been elected: Charles H. Sabin, vice-president of the Guaranty Trust Company; Albert H. Wiggins, president of the Chase National Bank; Benjamin Strong, Jr., vice-president of the Bankers' Trust Company; Milton E. Ailes, Washington, D. C.; Charles R. Capps, Norfolk, Va.; James C. Colgate, New York; Wilson S. Kinnear, New York; Mills B. Lane, Savannah, Ga.; Robert F. Maddox, Atlanta, Ga.; Fergus Reid, Norfolk, Va.; J. P. Taliaferro, Jacksonville, Fla.; A. H. Woodward; Birmingham, Ala., and Samuel L. Fuller, New York. The following have retired from the board: Rieman Duval, H. C. Perkins, Washington, D. C.; H. Clay Pierce, New York; John D. Ramsay, Baltimore; H. K. Whigham, of London, Eng., and John Skelton Williams, Richmond, Va. The number of directors was increased from 20 to 26.

WISCONSIN, MINNESOTA & PACIFIC.—The time for making deposits of the first mortgage 4 per cent. bonds under the protective agreement expired on November 14, and the committee has announced that a substantial majority of the bonds has been deposited.

ARGENTINE RAILROAD CONSTRUCTION.—The Pacific Railway Company, on September 1, opened to public traffic the first section of 62 miles of the railroad from Bahia Blanca to Patagones.

[ADVERTISEMENT.]

ANNUAL REPORTS.

ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY—SIXTEENTH ANNUAL REPORT.

FISCAL YEAR ENDED JUNE 30, 1912.

To the Stockholders:

The Directors herewith submit their report of the operations and affairs of the St. Louis and San Francisco Railroad Company for the fiscal year ended June 30th, 1912.

The results of operation for the fiscal year were as follows:

Operating revenue (decrease \$1,058,863.96 or 2.5 per cent.)	.....	\$42,100,363.73
Operating expense (decrease \$610,810.87 or 2.1 per cent.)	.....	28,709,589.13

Net operating revenue (decrease \$448,053.09 or 3.2 per cent.)	.....	\$13,390,774.60
Taxes (increase \$145,755.61 or 8 per cent.)	.....	1,957,582.76
Miscellaneous income	.....	\$11,433,191.84
Total income	.....	1,559,318.27

Interest, rentals and other fixed charges	.....	\$12,992,510.11
		12,815,111.34

Net income after providing for all charges, transferred to credit of profit and loss..... \$177,398.77

The average mileage operated during the year was 5,241.39 miles, being an increase over preceding year of 53.46 miles or one per cent. This does not include the New Orleans, Texas and Mexico Railroad Lines, the mileage and operating results of which are shown separately on the following page.

The main track mileage at June 30, 1912, was.....	5,254.98 miles
The main track mileage at June 30, 1911, was.....	5,227.37 miles
Showing an increase of.....	27.61 miles

This increase is explained as follows:

MILEAGE CONSTRUCTED.

Brownwood, Texas, to May, Texas.....	17.65 miles
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MILEAGE OPERATED UNDER TRACKAGE CONTRACTS.

Avard, Okla., to Waynoka, Okla.....	9.70 miles
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Irving, Texas, to Dallas, Texas, as reported in year 1911.....	10.50 miles
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Irving, Texas, to Dallas, Texas, as corrected at June 30, 1912.....	10.76 miles
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Total increase.....	27.61 miles
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On pages 79, 80 and 81 will be found details of the mileage of all the Lines operated, owned or controlled by this Company.

NEW ORLEANS, TEXAS AND MEXICO RAILROAD LINES.

The following shows the results of operation of the New Orleans, Texas & Mexico Railroad Lines for the fiscal year 1912. These lines were placed on an operating basis on July 1, 1911:

Average mileage operated.....	983.12
Operating ratio.....	81.32
Operating revenue.....	\$4,677,093.01
Operating expenses.....	3,803,469.95
Net operating revenue.....	\$873,623.06
Taxes.....	89,394.07
Operating income.....	\$784,228.99
Add—	
Miscellaneous income.....	120,015.90
Total income.....	\$904,244.89
Interest.....	\$1,279,184.27
Rentals.....	334,281.60
Hire of equipment.....	194,748.19
Total interest and all other charges.....	\$1,808,214.06

Balance transferred to debit of profit and loss..... \$903,969.17

The above deficit is charged to profit and loss account of the St. Louis & San Francisco Railroad Company. About one-half the deficit occurred during the last two months of the fiscal year, in consequence of the disastrous floods from the overflow of the Mississippi River, mentioned herein.

The steady progress of the New Orleans, Texas & Mexico Division is indicated by the increase in gross earnings for the year amounting to over 25%, it being noteworthy that each month shows a gain over the corresponding month of the previous year. In the month of April, just prior to the floods, these lines as a whole, showed a surplus over all fixed charges.

The increase in the number of settlers has again been gratifying.

This Division will be greatly benefited by the recent construction in the richest part of the Rio Grande Valley, of a new tributary line, the San Benito & Rio Grande Valley Railroad, extending north and south of San Benito, Texas, 43.6 miles of which are now completed and in operation. There are also under construction 22 miles additional north and south of Mission, Texas.

The business of this Division to date has had no material benefit from the through traffic anticipated with Mexico via the National Railways of Mexico. The subsidence of political troubles in Mexico should, therefore, add considerably to the volume of traffic now handled.

Since the close of the fiscal year, the gross earnings of the Division continue their gains noted above, the increase for the three months ended September 30, 1912, being over \$825,000.00, or about 22% more than in the same three months in 1911.

CAPITAL STOCK.

There was no change during the year in the company's capital stock issued or outstanding.

The capital stock outstanding (all classes), per mile of road owned at end of fiscal year was \$9,858.56 as compared with \$14,723.68 in year 1902.

FUNDED DEBT AND EQUIPMENT BONDS AND NOTES.

The outstanding funded debt at June 30, 1912, was.....	\$237,872,162.31
The outstanding equipment trust bonds and notes were.....	13,469,461.39
Total.....	\$251,341,623.70
The outstanding funded debt at June 30, 1911, was.....	\$228,924,224.68
The outstanding equipment trust bonds and notes were.....	14,498,491.59
Total.....	243,422,716.27

The net increase for the year was..... \$7,918,907.43

Statements on pages 19 and 20 give in detail the changes in funded debt and equipment notes.

EQUIPMENT.

The following equipment was purchased during the year:

1. Under Trust Agreement, Series "S."	
20 Pacific Type Locomotives.	
12 Switching Locomotives.	
4 Steel Buffet Coach Cars.	
1 Steel Coach Dining Car.	
3 Steel Buffet-Dining Cars.	
5 Steel Dining Cars.	
10 Steel Chair Cars.	
15 Steel Coaches.	
3 Steel Mail and Passenger Cars.	
2 Steel Baggage Cars.	
12 Steel Mail Cars.	
500 Steel Underframe Refrigerator Cars.	

2. Purchased for cash:

192 Ice Cars,	
11 Furniture Cars	1 Refrigerator Car.

{ (Built at Company's Shops).

All of this additional equipment was in use at June 30, 1912.

On pages 38 and 39 of this report will be found statements showing the number of each class of equipment owned and leased.

CONSTRUCTION.

THE BROWNWOOD NORTH & SOUTH RAILWAY.

A line extending from Brownwood, Texas, to May, Texas, 17.65 miles, completed and put in operation November 2, 1911. This line has a reserve fund sufficient to meet its fixed charges for a period of six years: it serves a section rich in agricultural products, and will contribute additional through business to the main lines.

NEW ORLEANS, TEXAS & MEXICO RAILROAD COMPANY.

The Erwinville Branch Extension, 12.88 miles. This branch provides facilities for extensive rice and sugar cane fields and sugar mills, and will contribute a large tonnage to the main lines.

On February 1, 1911, the New Orleans, Texas & Mexico Railroad Company leased the property of the Louisiana Southern Railway Company, consisting of approximately 45 miles of main track and equipment, for a period of twelve years, the lessor agreeing to furnish funds necessary to improve, reconstruct and extend its lines. During the past year 20.09 miles of additional main track were built, making the total mileage at June 30, 1912, 65.29 miles of main track, and 8.86 miles of side tracks.

The lease of this property to the New Orleans, Texas & Mexico Railroad Company gives the latter control of all through business originating on the leased property, while the lessee incurs no financial responsibility under the lease beyond the accounting for the net earnings from the operation of the property.

GENERAL.

The extraordinary operating and traffic difficulties experienced during the past winter and spring are partly illustrated by a comparison of the results for the earlier and for the later months of the fiscal year.

In the six months ended December 31, 1911,

Gross operating revenue decreased.....	\$573,298.68
Operating expenses were decreased.....	1,031,811.32

and Net operating revenue increased..... \$458,512.64

During this period the ratio of operating expenses to total revenue was 65.86% as compared with 68.73% during the corresponding period of the previous year.

The most severe winter weather for many years was followed by the most disastrous floods which have occurred in the Mississippi Valley since its settlement, with the result that during the six months ended June 30, 1912,

Gross operating revenue decreased.....	\$485,568.28
Operating expenses increased.....	421,000.45

and Net operating revenue decreased..... \$906,565.73

The operating ratio during these six months rose to 70.79%. Conducting transportation ratio for the first six months was 34.51%, for the last six months 40.29%.

In consequence of a stage of water in the Mississippi River averaging five feet above previous flood records, the protection levee broke at Point Pleasant, opposite Portageville, Mo., on March 24th. Subsequent breaks below that point and above Memphis, Tenn., put 153 miles of your tracks in Missouri and Arkansas out of commission, breaking the important main line between St. Louis and Memphis, and between Kansas City and Memphis. These lines were not restored to service until May 10th. The direct cost of their restoration, as taken into the accounts, was \$274,008.15, and collateral costs, not included therein as flood damage, doubtless amounted to more than \$100,000. It is difficult to closely estimate the resulting loss of gross earnings from traffic, but the total was beyond doubt in excess of \$500,000.

On May 3d, the flood waters broke the levees in Louisiana, breaking the main line of the New Orleans, Texas & Mexico Railroad, and submerging it for a distance of 46 miles; train service was impossible until

June 27th, during which time the expense of protecting and rebuilding the property was large, with earnings largely reduced.

An increase of 34.26 tons of revenue freight per train mile more than offset the slight decrease in revenue per ton mile, and brought an increase of 26.7 cents in earnings per freight train mile.

The large loss in passenger earnings, as shown on page 14, resulted in part from flood conditions, but to a greater extent was due to the general conditions throughout the territory, as reflected in the reports of nearly all other carriers.

The largest expenditures for betterment account during the year were for additional ballast work, amounting to more than \$600,000.

16.14 miles of new industrial and side tracks were constructed during the year.

The Industrial Department reports show that during the year 320 new industrial plants, costing over \$5,800,000 and employing 5,700 men, were located on the company's tracks. The tonnage producing capacity of these plants will approximate 66,000 carloads per annum.

The same industrial activity is shown for the New Orleans, Texas & Mexico Railroad Lines. On the tracks of these lines there were located 90 new plants, costing over \$2,800,000, and employing 3,500 men. It is estimated that their tonnage producing capacity will approximate 35,000 carloads per annum.

The balance sheet on pages 16 and 17 is in accordance with the form prescribed by the Interstate Commerce Commission, and on pages 45 to 81 will be found consolidated balance sheet and statistical statements including the figures of the Chicago & Eastern Illinois and New Orleans, Texas & Mexico Railroad Companies.

Acknowledgment is gratefully made to officers and employees whose devotion and loyal efforts brought the property through a most difficult year.

By order of the Board of Directors.

B. L. WINCHELL,
President.

GENERAL PROFIT AND LOSS ACCOUNT AND ADJUSTMENTS
THEREIN,

JUNE 30TH, 1911, TO JUNE 30TH, 1912.

CREDIT.

Balance at credit, as per annual report June 30th,	
1911	\$4,833,209.88
Surplus for the year ended June 30th, 1912	177,398.77
Sundry adjustments not affecting current year's income	104,625.29

TOTAL CREDIT \$5,115,233.94

DEBIT.

New Orleans, Texas and Mexico Railroad Lines deficit	\$903,969.17
Proportion for the year of discount on securities	857,152.49
Dividends paid—four per cent. on first preferred stock	199,742.12

TOTAL DEBIT \$1,960,863.78
Balance \$3,154,370.16

By Balance at credit, June 30th, 1912. \$3,154,370.16

CONDENSED GENERAL BALANCE SHEET, JUNE 30, 1912, AND COMPARISON WITH PREVIOUS YEAR.

ASSETS. 1912. 1911. INCREASE OR DECREASE.

PROPERTY INVESTMENT—

Road and Equipment—	
Investment to June 30th, 1907:	
Road \$208,885,657.26	\$208,885,657.26
Equipment 34,247,705.12	34,247,705.12
\$243,133,362.38	\$243,133,362.38

Investment since June 30th, 1907:	
Road \$11,486,318.91	\$10,664,400.26
Equipment 12,941,568.13	10,916,092.31
\$24,427,887.04	\$21,580,492.57

\$267,561,249.42	\$264,713,854.95	\$2,847,394.47
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Reserve for Accrued Depreciation—Cr. 470,552.36	382,335.02	88,217.34
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Total \$267,090,697.06	\$264,331,519.93	\$2,759,177.13
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SECURITIES—

Securities of proprietary, affiliated and controlled companies—Pledged—	
Stocks \$75,535,023.56	\$72,483,573.56
Funded Debt 3,561,500.00	3,453,500.00
Miscellaneous 27,208,911.41	25,827,677.49
\$106,305,434.97	\$101,764,751.05

Securities Issued or Assumed—Pledged—Funded Debt	4,040,000.00	13,852,027.55	—9,812,027.55
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Securities of proprietary, affiliated and controlled companies—Unpledged—		
Stocks 314,446.25	296,446.25	18,000.00

Total \$110,659,881.22	\$115,913,224.85	—\$5,253,343.63
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OTHER INVESTMENTS—

Advances to proprietary, affiliated and controlled companies for construction, equipment and betterments	\$290,190.81	\$330,568.17	—\$40,377.36
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Miscellaneous investments—Physical property	1,166,001.86	1,036,522.48	129,479.38
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Securities—Pledged	1,877,215.89	1,877,215.89
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Securities—Unpledged	478,762.42	257,247.99	221,514.43
Total	\$3,812,170.98	\$1,624,338.64	\$2,187,832.34
Total Property Investment	\$381,562,749.26	\$381,869,083.42	—\$306,334.16

WORKING ASSETS—

Cash	\$6,049,999.42	\$4,703,508.22	\$1,346,491.20
Securities issued or assumed—			
Held in treasury—			
Stocks 6,737.70	6,699.44	38.26	
Funded debt 730,151.31	991,639.16	—261,487.85	
Marketable securities—			
Stocks 1,137,514.53	1,077,514.53	60,000.00	
Funded debt 30,393.03	112,000.00	—81,606.97	
Miscellaneous 13,000.00	.....	13,000.00	
Loans and bills receivable.			
Traffic and car service balances—due from other companies 3,464,411.49	2,294,061.72	1,170,349.77	
Net balance due from agents and conductors 1,710,513.35	1,156,439.01	554,074.34	
Miscellaneous accounts receivable 502,341.00	719,267.90	—216,926.90	
Material and supplies.....			
3,114,281.12	3,084,360.15	29,920.97	
Total	\$19,410,499.93	\$16,586,679.28	\$2,823,820.65

ACCRUED INCOME NOT DUE—

Unmatured interest, dividends and rents receivable	\$51,299.20	\$251,457.14	—\$200,157.94
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DEFERRED DEBIT ITEMS—

Advances—			
Temporary advances to proprietary, affiliated and controlled companies..	\$412,121.31	\$3,121.09	\$409,000.22
Working funds	109,856.04	73,660.53	36,195.51
Rents and insurance paid in advance	140,996.98	149,153.56	—8,156.58
Unextinguished discount on funded debt	12,929,614.53	11,590,239.26	1,339,375.27
Special deposit	113,008.23	390,182.99	—277,174.76
Cash and securities in sinking and redemption funds	468,730.49	5,535,736.35	—5,067,005.86
Cash and securities in insurance and other reserve funds	104,000.00	114,000.00	—10,000.00
Other deferred debit items.	1,132,283.53	1,480,690.30	—348,406.77
Total	\$15,410,611.11	\$19,336,784.08	—\$3,926,172.97
Grand Total	\$416,435,159.50	\$418,044,003.92	—\$1,608,844.42

LIABILITIES. 1912. 1911. INCREASE OR DECREASE.
--

STOCK—			
Capital stock—			
Common stock—			
Held by company.... \$30,143,449.60	\$29,918,449.60	**225,000.00	
Not held by company. 28,999,850.40	28,999,850.40	.....
\$59,143,300.00	\$58,918,300.00	\$225,000.00	

Preferred stock—			
Held by company.... \$15,006,588.10	\$15,006,588.10	.....
Not held by company. 20,993,411.90	20,993,411.90	.....
\$36,000,000.00	\$36,000,000.00	.....
Total	\$95,143,300.00	\$94,918,300.00	\$225,000.00

MORTGAGE, BONDED AND SECURED DEBT—			
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Funded debt—			
Mortgage bonds—			
Held by company.... \$4,364,151.31	\$14,915,012.61	—\$10,550,861.30	
Not held by company. 227,863,731.00	209,726,932.07	18,136,798.93	
\$232,227,882.31	\$224,641,944.68	\$7,585,937.63	

Collateral trust bonds—			
Held by company.... \$3,990,000.00	\$3,990,000.00	.....
Not held by company. 44,081,500.00	49,785,050.00	—\$5,703,550.00	
\$48,071,500.00	\$53,775,050.00	—\$5,703,550.00	

Income bonds—			
Held by company.... \$399,500.00	\$399,500.00	.....
Not held by company. 5,923,280.00	5,923,280.00	
\$6,322,780.00	\$6,322,780.00	

Equipment trust obligations—			
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Not held by company. \$13,469,461.39	\$14,498,491.59	—\$1,029,030.20	
Total	\$300,091,623.70	\$299,238,266.27	\$853,357.43

WORKING LIABILITIES—

Loans and bills payable...	\$2,790,000.00	\$1,075,000.00	\$1,715,000.00
Traffic and car service balances due to other companies	1,599,302.98	1,166,951.65	432,351.33
Audited vouchers and wages unpaid	5,054,781.88	4,517,034.69	537,747.19
Miscellaneous accounts payable	253,328.88	52,258.20	201,070.68
Matured interest, dividends and rents unpaid.....	3,494,644.13	4,110,575.53	—615,931.40
Matured mortgage, bonded and secured debt unpaid.	867,025.00	5,024,816.64	—4,157,791.64

Other working liabilities...	27,035.05	36,032.69	-8,997.64
Total	\$14,086,117.92	\$15,982,669.40	-\$1,896,551.48
ACCURED LIABILITIES—NOT DUE			
Unmatured interest, dividends and rents payable.	\$1,440,740.65	\$1,610,494.70	-\$169,754.05
Taxes accrued	650,298.69	570,549.07	79,749.62
Total	\$2,091,039.34	\$2,181,043.77	-\$90,004.43
DEFERRED CREDIT ITEMS—			
Other deferred credit items	\$1,632,214.37	\$648,520.59	\$983,693.78

APPROPRIATED SURPLUS—			
Reserves from income or surplus—			
Invested in sinking or redemption funds	\$236,494.01	\$241,994.01	-\$5,500.00
PROFIT AND LOSS—			
Balance	\$3,154,370.16	\$4,833,209.88	-\$1,678,839.72
Grand Total	\$416,435,159.50	\$418,044,003.92	-\$1,608,844.42

*This increase is capital stock of The Brownwood North & South Ry. Co., issued and delivered to St. Louis and San Francisco R. R. Co., and by it pledged under its Refunding Mortgage.

CHICAGO & EASTERN ILLINOIS RAILROAD COMPANY—TWENTY-THIRD ANNUAL REPORT.
INCLUDING EVANSVILLE & INDIANAPOLIS RAILROAD COMPANY
FISCAL YEAR ENDED JUNE 30, 1912.

To the Stockholders:

The Directors herewith submit their report of the operations and affairs of the Chicago and Eastern Illinois Railroad Company for the fiscal year ended June 30, 1912.

The results of the operations for the fiscal year were as follows:
Total operating revenue (increase \$335,103.76 or 2.3 per cent.) \$15,215,513.04
Operating expenses (increase \$794,654.19 or 7.9 per cent.) 10,899,751.70

Net operating revenue (decrease \$459,550.43 or 9.6 per cent.)	\$4,315,761.34
Taxes	426,592.75
Operating income.....	\$3,889,168.59
Miscellaneous income.....	829,192.45
Total income.....	\$4,718,361.04
Interest and rentals.....	3,660,561.62
Net income after providing for all charges....	\$1,057,799.42
Dividends paid (6 per cent. on preferred and 5 per cent. on common stock).....	952,853.00
Surplus for the year.....	\$104,946.42

A winter of unparalleled severity in this region seriously affected the efficiency of your property and employees. Heavy snow storms, often following closely upon one another, caused practical stoppage of operation at times, and rendered it impossible to haul normal tonnage trains during the larger part of the unusually long winter. Following closely thereupon, the coal mines upon which this property depends to a large extent for earnings, were closed on April 1st, for two months by reason of the biennial misunderstanding and readjustment between the operators and the miners. While this caused a loss of 573,552 tons of coal handled during the fiscal year, it is noteworthy that during the coal year April 1st, 1911, to March 31st, 1912, the total coal tonnage handled by your line was the largest in its history.

In accordance with resolutions adopted by the stockholders of each of the companies, a consolidation of the Chicago and Eastern Illinois Railroad Company, the Evansville & Terre Haute Railroad Company and the Evansville Belt Railway Company was effected as of date July 1st, 1911, doing away with the necessity of separate official staffs and separate accounting, and effecting material advantage in the operations of the properties. The authorized issue of preferred capital stock of the Chicago and Eastern Illinois Railroad Company was increased from \$10,000,000 to \$15,000,000 to provide for this consolidation, of which authorized increase, \$3,154,500 was issued. The mortgage, bonded and secured debt was increased during the year by \$17,461,942.24 as shown on page 17.

The statements and statistical sheets in this report for the fiscal year 1910-11 have been revised to include the Evansville & Terre Haute Railroad Company, the Evansville Belt Railway Company and the Evansville & Indianapolis Railroad Company where necessary for comparison.

The matter of locomotive fuel supply in abundant quantity and at reasonable price has come to be more and more difficult. When there has been large demand for coal, and the market price has risen above the prices at which it has been contracted by the Railroad Company, we have not always been able to obtain full deliveries, and have even been obliged to confiscate a certain proportion of the coal offered for commercial shipment in order to haul the balance to market. In addition to this, large bodies of coal lands contiguous to the lines of your railroad have been purchased by outside interests, which might have made it still more difficult to obtain an adequate supply at fair prices. Your company, therefore, decided to purchase its own coal supply, and during the year has bought ten operating mines in Montgomery County, Illinois, and Vermillion County, Indiana, and coal lands in Sullivan County, Indiana, with a total acreage of 41,425,028 acres of coal. These mines will not be operated by your company, but have been leased to other parties under conditions which will insure an adequate supply of coal for company's use. We feel that the company is now protected in this particular for a long time to come.

In order to pay for these properties, the company made what is known as "Chicago and Eastern Illinois Purchase Money First Lien Coal Mortgage," with an authorized issue of 5% bonds limited to \$7,000,000, at any one time outstanding. During the year \$5,031,000 of bonds have been issued under this mortgage.

During the year, the Industrial Department located 39 new industries, estimated cost of which was \$627,200, employing 2,418 men with a yearly output of 6,835 cars. In addition to this, arrangements were practically completed for the location of two additional large industries, costing \$1,250,000, and employing 900 men with a yearly output of 2,000 cars.

New equipment was received and placed in service, as follows:

- 7 60-foot steel mail cars Nos. 57 to 63, inclusive.
- 1,000 30-ton capacity refrigerator cars Nos. 1 to 1,000, inclusive.
- 4 Passenger coaches Nos. 427 to 430, inclusive.
- 2 Chair cars Nos. 483 and 484.
- 3 Baggage cars Nos. 21 to 23, inclusive.
- 2 Lounging observation cars Nos. 600 and 601.
- 8 Pacific type locomotives Nos. 1008 to 1015, inclusive.

At a total cost of..... \$1,606,261.06

Cordial thanks are given to officers and employees for faithful service.

By order of the Board,

B. L. WINCHELL,

President.

OCTOBER 3, 1912.

CONDENSED GENERAL BALANCE SHEET, JUNE 30, 1912,
AND COMPARISON WITH PREVIOUS YEAR.

ASSETS.	1912.	1911.	INCREASE OR DECREASE.
<i>Property Investment:</i>			
I.—Road and equipment:			
Investment to June 30, 1907:			
Road	\$36,878,947.77	\$34,654,422.67	\$*2,224,525.10
Equipment	20,173,710.41	20,173,710.41	.....
	\$57,052,658.18	\$48,828,133.08	\$2,224,525.10
Investment since June 30, 1907:			
Road	\$10,951,661.92	\$1,040,365.75	\$9,911,296.17
Equipment	7,817,707.32	2,695,997.26	5,121,710.06
	\$18,769,369.24	\$3,736,363.01	\$15,033,006.23
Reserve for accrued depreciation—Cr.	280,769.25	194,691.80	86,077.45
Total road and equipment	\$75,541,258.17	\$58,369,804.29	\$17,171,453.88
II.—Securities:			
Securities issued or assumed			
—pledged:			
Funded debt.....	\$1,218,000.00	.....	\$1,218,000.00
Securities of proprietary, affiliated and controlled companies:			
Stocks—pledged	1.00	.....	1.00
Stocks—unpledged	184,585.54	\$373,231.76	-\$188,646.22
Total securities (page 24)	\$1,402,586.54	\$373,231.76	\$1,029,354.78
III.—Other investments:			
Miscellaneous investments:			
Physical property.....	\$4,672,347.31	\$215,743.35	\$4,456,603.96
Securities—pledged	234,956.93	.....	234,956.93
Securities—unpledged	1.00	1.00	.....
Total other investments (page 24) ..	\$4,907,305.24	\$215,744.35	\$4,691,560.89
Total property investments	\$81,851,149.95	\$58,958,780.40	\$22,892,369.55
<i>Working Assets:</i>			
Cash	\$1,394,712.55	\$1,183,763.10	\$210,949.45
Securities issued or assumed			
—held in treasury:			
Stocks (page 24).....	1,578,600.00	.....	1,578,600.00
Funded debt (page 24)....	2,000.00	2,000.00	.....
Marketable securities:			
Stocks (page 24).....	9,000.00	3,700.00	5,300.00
Funded debt (page 24)...	10,000.00	88,000.00	-\$78,000.00
Miscellaneous (page 24)...	100,635.12	100,635.12	.....
Loans and bills receivable...	503,977.42	545,075.83	-\$41,098.41
Traffic and car service balances due from other companies	353,789.53	258,953.07	94,836.46
Net balance due from agents and conductors.....	448,252.63	326,008.89	122,243.74
Miscellaneous accounts receivable	818,308.45	653,216.74	165,091.71
Material and supplies.....	1,528,804.20	1,171,935.30	356,868.90
Other working assets.....	4,810.96	1,674.49	3,136.47
Total working assets.....	\$6,752,890.86	\$4,334,962.54	\$2,417,928.32
<i>Deferred Debit Items:</i>			
Advances:			
Temporary advances to proprietary, affiliated and controlled companies...	\$40,099.30	\$40,099.30	.....
Working funds.....	5,603.17	1,327.17	\$4,276.00
Rents and insurance paid in advance	18,227.98	38,700.54	-\$20,472.56
Unextinguished discount on securities:			
Unextinguished discount on funded debt	1,704,833.25	1,772,894.35	-\$68,061.10
Special deposits (page 24)...	8,616,091.45	10,578,091.64	-\$1,962,000.19
Cash and securities in sinking and redemption funds....	142,769.60	13,366.33	129,403.27
Other deferred debit items..	1,407,658.01	653,160.50	754,497.51
Total deferred debit items.	\$11,935,282.76	\$13,097,639.83	-\$1,162,357.07
Total	\$100,539,323.57	\$76,391,382.77	\$24,147,940.80

NOTE—The above assets include \$1,000,000.00 (or proceeds) of refunding and improvement bonds advanced by Trustees for working fund. Large increase in both assets and liabilities caused by consolidation with the Evansville & Terre Haute Railroad Company and Evansville Belt Railway Company.

*Represents Evansville & Indianapolis Railroad Company. Figures in *italics* denote credits.

LIABILITIES.	1912.	1911.	INCREASE OR DECREASE.
<i>Stocks:</i>			
Capital stock:			
*Common stock.....	\$13,626,100.00	\$13,626,100.00	
Preferred stock.....	12,146,500.00	8,992,000.00	\$3,154,500.00
Stock liability for conversion of outstanding securities of constituent companies.....	181,102.21	168.88	180,933.33
Total stock.....	\$25,953,702.21	\$22,618,268.88	\$3,335,433.33

Mortgage Bonded and Secured Debt:

Funded debt:			
In treasury			
Mortgage bonds.....	\$1,220,000.00	\$2,000.00	\$1,218,000.00
Outstanding (not held in treasury)			
Mortgage bonds.....	55,394,000.00	43,549,000.00	11,845,000.00
Collateral trust bonds.....		27,000.00	—27,000.00
Miscellaneous funded obligations.....	5,031,000.00		5,031,000.00
Equipment trust obligations.....	5,094,174.40	5,699,232.16	—605,057.76

Total mortgage, bonded and secured debt (page 18)..... \$66,739,174.40 \$49,277,232.16 \$17,461,942.24

Working Liabilities:

Loans and bills payable.....	\$1,653,999.00	\$528,249.00	\$1,125,750.00
Traffic and car service balances due to other companies.....	208,076.40	244,635.27	—36,558.87
Audited vouchers and wages unpaid.....	1,456,381.69	1,159,469.94	296,911.75
Miscellaneous accounts payable.....	173,856.09	124,416.71	49,439.38
Matured interest, dividends and rents unpaid.....	68,015.37	56,896.00	11,119.37
Matured mortgage, bonded and secured debt unpaid.....	1,336.04	336.04	1,000.00
Other working liabilities.....	41,718.25	49,427.55	—7,709.30
Total working liabilities	\$3,603,382.84	\$2,163,430.51	\$1,439,952.33

Accrued Liabilities Not Due:

Unmatured interests, dividends and rents payable.....	\$1,109,109.59	\$757,582.09	\$351,527.50
Taxes accrued.....	306,522.90	229,865.56	76,657.34
Total accrued liabilities not due.....	\$1,415,632.49	\$987,447.65	\$428,184.84

Deferred Credit Items:

Operating reserves.....	\$211,116.38	\$200,262.12	\$10,854.26
Other deferred credit items.....	367,419.37	330,870.29	36,549.08
Total deferred credit items	\$578,535.75	\$531,132.41	\$47,403.34

Profit and Loss:

Balance	\$2,248,895.88	\$813,871.16	\$1,435,024.72
Total	\$100,539,323.57	\$76,391,382.77	\$24,147,940.80

*The Equitable Trust Company of New York (successor to The Trust Company of America) holds in Trust Assets \$6,408,300.00 common stock included in above figures (page 24).

COLORADO AND SOUTHERN LINES.

CHICAGO, July 1, 1912.

To the Stockholders of the Colorado & Southern Railway Company: Herewith is submitted the Thirteenth Annual Report of this Company, for the year ended June 30, 1912. There are included the reports of A. D. Parker, Vice-President, and J. H. Bradbury, General Auditor. By order of the Board of Directors,

DARIUS MILLER,
President.

DENVER, COLO., July 1, 1912.

MR. D. MILLER,
President,
Chicago, Ill.

DEAR SIR—I herewith submit the report for the fiscal year ended June 30, 1912, which report combines the operations and affairs of the lines operated by the companies named, and which are herein designated as the "Colorado & Southern Lines."

During the fiscal year from November 1, 1911, the entire line of The Colorado Springs and Cripple Creek District Railway was leased to The Florence and Cripple Creek Railroad Company for the purposes of operation, and the results of operation of this line are therefore included in the following statements for a period of four months, as compared with twelve months of the previous year. For the remaining eight months the return from this property is treated as rental received.

COLORADO & SOUTHERN LINES, YEARS ENDED JUNE 30.

Per Cent.	Per Cent.	1912.	OPERATING REVENUES.	1911.	Operating Revenues.
Per Cent. of Total	of Total				
Operating Revenues.					
70.56	\$9,850,048.55	.....	Freight Revenue	\$11,120,361.01	70.27
23.26	3,246,772.74	.....	Passenger Revenue	3,870,671.92	24.46
1.56	216,282.70	.....	Mail Revenue	216,068.73	1.37
1.89	263,861.93	.....	Express Revenue	280,613.32	1.77
	297,114.93	.....	Miscellaneous Transportation		
2.13	297,114.93	.....	Revenue	265,927.08	1.68
	Revenue from Operations other				
.57	80,750.26	.....	than Transportation	67,508.78	.43
.03	5,144.57	.....	Joint Facilities	2,913.67	.02
100.00	\$13,959,975.68	...Total Operating Revenues...	\$15,824,064.51	100.00	

OPERATING EXPENSES.

Maintenance of Way and					
11.73	\$1,637,316.29	.....	Structures	\$1,688,223.20	10.67
18.14	2,532,180.64	..	Maintenance of Equipment..	2,779,142.78	17.56
1.69	236,126.75	.....	Traffic Expenses	239,692.26	1.51
33.87	4,728,764.59	....	Transportation Expenses....	5,112,951.78	32.31
3.45	482,065.57	.....	General Expenses.....	514,101.32	3.25
68.88	9,616,453.84	...Total Operating Expenses...	10,334,111.34	65.30	
31.12	4,343,521.84	....Net Operating Revenue....	5,489,953.17	34.70	
.....	24,522.80	.....	Operations	33,285.20	.....
.....	4,318,999.04	.....	Total Net Revenue.....	5,456,667.97	.....
.....	511,470.31	.....	Taxes Accrued	478,323.05	.....
.....	3,807,528.73	.....	Operating Income	4,978,344.92	.....

OTHER INCOME.

\$176,946.41	Rents	\$42,920.85
613,327.89	Miscellaneous Interest	602,300.10
790,274.30	Total Other Income.....	645,220.95
\$4,597,803.03	Gross Corporate Income....	\$5,623,565.87

DEDUCTIONS FROM GROSS CORPORATE INCOME.

\$162,863.55	Rents	\$471,846.44
887.68	Miscellaneous Interest	959.68
2,876,854.82	Interest Accrued on Funded Debt	2,811,682.34
8,089.35	Extinguishment of Discount on Securities Sold	6,085.10
49,140.01	Sinking Funds	34,399.94
3,097,835.41	Total Deductions	3,324,973.50
1,499,967.62	Net Corporate Income....	2,298,592.37
1,300,000.00	Dividends	1,300,000.00
\$199,967.62	Surplus	\$998,592.37

The percentage of Operating Revenues required for Operating Expenses was 68.88% as compared with 65.30% in the previous year, and the proportion of the Gross Corporate Income required for Interest on Funded Debt was 62.57% as compared with 49.99% in the previous year.

During the fiscal year, Refunding and Extension Mortgage Bonds of this Company were issued to cover expenditures for:

Additions and Betterments for the Calendar Year 1911..... \$1,117,240.00
Purchase of Securities of The Colorado Railroad Company.... 3,061,085.95
.....

\$4,178,325.95

And Refunding and Extension Mortgage Bonds were retired from proceeds of sale of securities pledged with the Trustee First Mortgage Bonds of C. S. & C. C. D. Ry. Co. were retired through Sinking Fund 34,000.00
Deferred Rentals under Equipment Leases were discharged.. 375,226.18

Making the net increase in Mortgage, Bonded and Secured Debt \$3,736,099.77

The outstanding Capital Stock was reduced by the purchase of 19.44 shares, par value \$1,944.00, "Stamped Stock" of Fort Worth & Denver City Railway Company.

There were sold from the treasury of the Company \$1,548,000.00 face amount of Refunding and Extension Mortgage Bonds; the proceeds of which reimbursed the treasury for expenditures made for new lines, equipment and additions and betterments.

There were charges to Capital Account aggregating \$2,045,419.91 for additions to the property. Of this amount there was expended for:

Structures and Machinery..... \$67,273.33
Substituting Permanent Bridges for Wooden Ones..... 73,550.56
New Line—Southern Jet. to Walsenburg Jet..... 649,290.63
New Line—Wellington to Cheyenne..... 718,073.52

Betterments to Line, Fort Collins to Dixon.....	82,262.71
Additional Spur and Industry Tracks.....	43,460.56
Additional Yard Tracks and Sidings.....	36,820.09
Purchase of Land—Denver.....	35,858.52
Purchase of Land—Cheyenne.....	48,400.00
Various Other Additions and Betterments.....	148,036.78
Additional Equipment	142,393.21

During the fiscal year the deficit from operations of The Trinity & Brazos Valley Railway Company was made up equally by The Chicago, Rock Island & Pacific Railway Company and The Colorado & Southern Railway Company. Ballasting with shell between Belt Junction and Topball is now going on and during the next fiscal year permanent bridges will be substituted for many of the present piling bridges on the line. Additional extensions and improvements to the Houston Terminals have been authorized, including the construction of two additional stories to the passenger depot.

The following statistical tables have been compiled in the form required for the Annual Report of Carriers to the Interstate Commerce Commission:

GENERAL BALANCE SHEET.
JUNE 30, 1912.

ASSETS.

Property Investment—Road and Equipment:	
Road	\$93,583,544.38
Equipment	15,466,973.09
Reserve for Accrued Depreciation—Credit.....	\$109,050,517.47
Total	2,263,062.34
Securities:	
Securities of Proprietary, Affiliated and Controlled Companies—Pledged—	
Stocks	\$1,431,865.51
Funded Debt	8,808,404.40
	10,240,269.91
Securities of Proprietary, Affiliated and Controlled Companies—Unpledged—	
Stocks	\$108,873.65
Funded Debt	2,728,436.00
	2,837,309.65
Total	\$13,077,579.56
Other Investments:	
Advances to Proprietary, Affiliated and Controlled Companies for Construction, Equipment and Betterments.....	107,393.17
Miscellaneous Investments—	
Physical Property	\$4,710.00
Securities Unpledged	53.00
	4,763.00
Total	\$112,156.17
Working Assets:	
Cash	747,226.16
Securities Issued or Assumed, Held in Treasuries—	
Funded Debt	3,075,865.31
Traffic and Car-Service Balances Due from other Companies	294,023.76
Net Balance Due from Agents and Conductors.....	169,628.31
Miscellaneous Accounts Receivable.....	379,101.73
Materials and Supplies.....	1,278,760.16
Other Working Assets	8,208.70
Total	\$5,952,814.13
Accrued Income Not Due:	
Unmatured Interest, Dividends and Rents Receivable...	\$284,965.20

Deferred Debit Items:

Advances—

Temporary Advances to Proprietary, Affiliated and Controlled Companies.....	\$247,983.80
Working Funds	787.18
Other Advances	521,991.98
Rents and Insurance Paid in Advance.....	21,566.65
Unextinguished Discount on Funded Debt.....	234,677.84
Special Deposits	6,025.21
Cash and Securities in Sinking Funds.....	524.21
Other Deferred Debit Items.....	157,082.79

Total	\$1,190,639.66
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Grand Total	\$127,405,609.85
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LIABILITIES.

Capital Stock:	
Common Stock	\$31,031,040.00
Preferred Stock	17,000,000.00

Total	\$48,031,040.00
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Mortgage, Bonded and Secured Debt:

Funded Debt—

Mortgage Bonds—	
Held by Companies	\$3,075,865.31
Not Held by Companies.....	61,664,900.00
Equipment Trust Obligations.....	64,740,765.31

Total	1,281,678.54
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Working Liabilities:	
----------------------	--

Traffic and Car-Service Balances Due to Other Companies	296,276.70
Audited Vouchers and Wages Unpaid.....	1,147,747.94
Matured Interest, Dividends and Rents Unpaid.....	92,595.25
Other Working Liabilities.....	20,480.93

Total	\$66,022,443.85
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Accrued Liabilities Not Due:	
Unmatured Interest, Dividends and Rents Payable.....	628,922.85
Taxes Accrued	336,963.69

Total	\$965,886.54
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Deferred Credit Items:	
Other Deferred Credit Items.....	\$167,762.67

Profit and Loss:	
Balance	\$10,661,375.97

Grand Total	\$127,405,609.85
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PROFIT AND LOSS ACCOUNT.

Credit:	
Balance June 30, 1911.....	\$10,337,997.88
Balance for Year brought forward from Income Account	199,967.62
Additions for Year:	
Miscellaneous Credits	168,514.55

Miscellaneous Credits	\$10,706,480.05
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Debit:	
Deductions for Year:	

Miscellaneous Debits	45,104.08
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Balance Credit, June 30, 1912.....	\$10,661,375.97
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MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY CO.—TWENTY-FOURTH ANNUAL REPORT.

INCLUDING CHICAGO DIVISION (WISCONSIN CENTRAL).

Herewith is submitted report for the Fiscal Year ending June 30, 1912. The Gross Earnings, Expenses, Fixed Charges and Surplus Income are shown in condensed form as follows:

	Soo Line.	Chicago Division.	Soo Line System.
Gross Earnings	\$17,105,685.95	\$9,578,554.98	\$26,684,240.93
Operating Expenses	9,586,408.46	6,636,882.56	16,223,291.02
Net Earnings	\$7,519,277.49	\$2,941,672.42	\$10,460,949.91
Income from Other Sources...	1,058,236.45	40,783.08	1,099,019.53
Total Income	\$8,577,513.94	\$2,982,455.50	\$11,559,969.44
Fixed Charges, Taxes, etc...	4,353,224.05	2,477,805.97	6,831,030.02
Surplus Income	\$4,224,289.89	\$504,649.53	\$4,728,939.42

Notwithstanding the fact that the grain crop last season was much below an average yield, the Gross Earnings exceed those of any previous year. The average mileage operated was 3,773.37 miles, an increase of 49.03 miles. As is generally known, by reason of increasing cost of labor and higher cost of supplies, the cost of handling traffic continues to advance, while the general tendency to lower rates and increase taxation makes more difficult the earning of profits sufficient for reasonable returns to shareholders and for improvements required for a higher grade of service.

During the year the extension from Frederic to Duluth was completed and traffic between the Twin Cities and Duluth is now being handled over this new line.

The line in North Dakota between Drake and Fordville (130 miles), construction of which was begun in 1910 and temporarily discontinued on account of crop failures, will be ready for traffic about October 1st.

To properly care for and encourage the further expansion of business of the Chicago Division it was thought advisable to make some new provision for terminals at Chicago. Accordingly there was incorporated the Central Terminal Railway Company of Illinois with an authorized capital of \$2,000,000 fully subscribed for by the Minneapolis, St. Paul & Sault Ste. Marie Railway Company. This Company has acquired property for the purpose. It embraces the tract of land, one block wide, located on the west side of the Chicago River, between Canal and Clinton Streets and extending from 12th Street to West 15th Place. It is very centrally located and unusually desirable for the purpose. Contracts have been made for the construction of concrete freight houses thereon. These improvements will be up-to-date in every particular. The property is made available by a contract with the Baltimore & Ohio Chicago Terminal Railroad Company for the use of that Company's tracks to a connection with this Company's Chicago Division. A strip of land one-half block wide extending from Canal Street to Halstead Street has been acquired for the purpose of connection with the Baltimore & Ohio Chicago Terminal Railroad Company's tracks and a considerable tract of land also acquired at 50th Street for yards, etc. It is expected that the improvement of these properties will be completed and ready for use when required.

In order to finance this proposition the Minneapolis, St. Paul & Sault Ste. Marie Railway Company and the Central Terminal Railway Company executed a joint mortgage covering the property and its improvements—Guaranty Trust Company of New York, Trustee. The mortgage provides for a possible issue of twenty million dollars of four per cent gold bonds. Six Million Dollars of these bonds were sold. The proceeds are sufficient to complete the terminals as now planned.

To provide funds for building the Frederic Extension to Duluth, temporary advances for which had been made from the Company's surplus account, there were issued \$1,520,000 of Minneapolis, St. Paul & Sault Ste. Marie Railway Co.'s First Mortgage Consolidated Gold Bonds. There was also issued during the year \$1,020,000 of Minneapolis, St. Paul & Sault Ste. Marie Railway Co.'s Equipment Trust notes in connection with additional equipment contracted for delivery prior to September 1, 1912.

To provide for temporary advances that were made for revision work on the Chicago Division, for payment of car trust obligations and retirement of maturing bonds of underlying mortgages of the Wisconsin Central Railway Co. there were issued and sold during the year \$3,500,000 of Wisconsin Central Railway Co. First and Refunding Mortgage Bonds.

The Company's property, including equipment, has been fully maintained to its usual standard and the policy of replacing where necessary temporary structures with those of a more substantial and permanent character has been continued.

The increase in Gross Earnings under the somewhat depressed commercial conditions that have existed during the past two years reflects to some extent the growth and development of the country adjacent to the more recently constructed lines.

The prospects for an unusually large grain crop in the Northwest this season are very bright and assures a very generous volume of business for the current year.

Respectfully submitted,
E. PENNINGTON,
President.

GENERAL BALANCE SHEET, JUNE 30, 1912.
ASSETS.

PROPERTY INVESTMENT:	
Road	\$88,907,191.14
Equipment	16,725,001.85
	\$105,632,192.99
Less Reserve for Accrued Depreciation..	1,461,476.80
Total	\$104,170,716.19
SECURITIES OF PROPRIETARY, AFFILIATED AND CONTROLLED COMPANIES:	
Wisconsin Central Ry. Co. Stock.....	\$3,661,120.88
St. Paul Union Depot Co. Stock.....	103,600.00
Minnesota Transfer Ry. Co. Stock....	7,000.00
Sault Ste. Marie Bridge Co. Stock.....	500.00
Sault Ste. Marie Union Depot Co. Stock..	50,590.56
Central Terminal Ry. Co. Stock.....	660,000.00
Minnesota Transfer Ry. Co. Bonds.....	55,000.00

Central Terminal Ry. Co. Bonds.....	139,500.00	
Total	4,677,311.44	
OTHER INVESTMENTS:		
Miscellaneous Investments:		
Tri-State Land Co. Stock.....	\$25,000.00	
Western Express Co. Stock.....	50,000.00	
Coeur d'Alene & Pend d'Orielle Ry. Co.		
5% Bonds	25,200.00	
W. C. Ry. Co. Equipment Contract.....	665,136.80	
Total	765,336.80	
WORKING ASSETS:		
Cash	\$5,271,256.27	
Securities in Treasury:		
M. S. S. M. & Atl. Ry. Co. 4% First Mortgage Bonds	10,000.00	
Pillsbury-Washburn Flour Milling Co., Ltd., 5% Bonds	4,700.00	
Village of Alexandria Bonds.....	4,000.00	
Traffic and Car Service Balances due from Other Companies	573,376.94	
Net Balances due from Agents and Conductors	1,315,976.90	
Miscellaneous Accounts and Bills Receivable	929,798.16	
Material and Supplies	2,767,845.71	
Total	10,876,953.98	
ACCRUED INCOME NOT DUE:		
Unmatured Dividends	\$111,487.00	
Unmatured Interest	12,019.52	
Total	123,506.52	
DEFERRED DEBIT ITEMS:		
Tri-State Land Co.....	\$1,395,078.75	
Land Sales (Deferred Payments).....	137,318.40	
Special Deposit for Equipment.....	1,254,560.84	
Milwaukee Terminal Ry. Co.	258,115.00	
Unextinguished Discount on Funded Debt.....	313,269.54	
Total	3,358,342.53	
Grand Total	\$123,972,167.46	
LIABILITIES.		
CAPITAL STOCK:		
Common	\$25,206,800.00	
Preferred	12,603,400.00	
Total	\$37,810,200.00	
MORTGAGE, BONDED AND SECURED DEBT:		
First Mortgage M. & P. Ry. Co. 4% Bonds	\$286,000.00	
First Mortgage M. S. S. M. & Atl. Ry. Co. 4% Bonds	8,204,000.00	
First Mortgage M. St. P. & S. S. M. Ry. Co. Consolidated 4% Bonds.....	52,225,000.00	
Second Mortgage M. St. P. & S. S. M. Ry. Co. 4% Bonds	3,500,000.00	
Equipment Trust Obligations.....	4,051,000.00	
Total	68,266,000.00	
WORKING LIABILITIES:		
Traffic and Car Service Balances due to Other Companies	\$204,819.46	
Audited Vouchers and Wages Unpaid....	3,488,714.32	
Miscellaneous Accounts Payable.....	378,984.53	
Matured Interest and Dividends Unpaid..	1,242,745.50	
Total	5,315,263.81	
ACCRUED LIABILITIES NOT DUE:		
Unmatured Interest	\$142,492.00	
Taxes Accrued	458,091.38	
Total	600,583.38	
DEFERRED CREDIT ITEMS:		
Operating Reserve	\$241,124.60	
Other Deferred Credit Items.....	31,649.61	
Total	272,774.21	
Profit and Loss.....	11,707,346.06	
Grand Total	\$123,972,167.46	

CONTINGENT LIABILITIES:

As joint maker with the Central Terminal Railway Company of Illinois, of Bonds secured by mortgage on property of the Central Terminal Railway Company..... \$6,000,000.00
 4 per cent Leased Line Certificates of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, issued in exchange for preferred stock of the Wisconsin Central Railway Company, held therefor..... \$11,448,700.00

INCOME ACCOUNT, FISCAL YEAR ENDING JUNE 30, 1912.

Net Operating Revenue	\$7,428,255.92
Outside Operations:	
Revenues	\$334,986.16
Expenses	243,964.59
Net Revenue from Outside Operations.....	91,021.57
Total Net Revenue.....	\$7,519,277.49
Taxes Accrued	1,123,135.50
Operating Income	\$6,396,141.99
Other Income:	
Dividends on Stock Owned.....	\$450,002.00
Hire of Equipment.....	336,144.99
Interest and Discount	155,062.56
Rents Receivable	69,879.73
Interest on W. C. Ry. Equipment Contract..	41,089.69
Interest on Bonds Owned.....	6,057.48
Total Other Income.....	1,058,236.45
Gross Corporate Income.....	\$7,454,378.44
Deductions from Gross Corporate Income:	
Interest on Bonds.....	\$2,507,440.00
Interest on W. C. Ry. Leased Line Certificates	445,836.94
Interest on Equipment Notes.....	152,415.00
Rental of Terminals.....	124,396.61
Total Deductions from Gross Corporate Income	3,230,088.55
Net Corporate Income.....	\$4,224,289.89

PROFIT AND LOSS ACCOUNT TO JUNE 30, 1912.

By Balance June 30, 1911.....	\$9,957,910.52
Net Corporate Income for the Year Ending June 30, 1912.....	4,224,289.89
Premium on Sale of Minneapolis, St. Paul & Sault Ste. Marie Ry. Co. Capital Stock.....	5,703.22
	\$14,187,903.63

Deductions for Year:

7 per cent Dividend on Preferred Stock.....	\$805,679.00
7 per cent Dividend on Common Stock.....	1,611,358.00
Extinguishment of Discount on Bonds and Car Trust Notes	12,556.18
Equipment Depreciation Prior to July 1, 1907	50,964.39
	2,480,557.57

Balance Credit June 30, 1912..... \$11,707,346.06

TRAFFIC AND MILEAGE STATISTICS, AS PER INTERSTATE COMMERCE COMMISSION CLASSIFICATION.

	1912. Passengers, Tonnage, Rates and Revenue.	1911. Passengers, Tonnage, Rates and Revenue.
PASSENGER TRAFFIC.		
Number of Passengers Carried Earning Revenue	1,930,486	1,846,822
Number of Passengers Carried One Mile	168,920,156	156,655,913
Number of Passengers Carried One Mile per Mile of Road.....	61,635	59,372
Average Distance Carried, Miles.....	87.50	84.82
Total Passenger Revenue.....	\$3,872,487.90	\$3,190,563.55
Average Amount Received from Each Passenger	\$2.00597	\$1.72759
Average Receipts per Passenger per Mile	\$0.02292	\$0.02367
Total Passenger Service Train Revenue	\$4,592,504.63	\$3,863,147.67
Passenger Service Train Revenue per Mile of Road	\$1,675.71	\$1,464.11
Passenger Service Train Revenue per Train Mile	\$1.31638	\$1.14634

FREIGHT TRAFFIC.

Number of Tons Carried of Freight		
Earning Revenue	6,200,764	5,012,786
Number of Tons Carried One Mile.....	1,652,831,716	1,070,804,319
Number of Tons Carried One Mile per Mile of Road.....	603,085	405,829
Average Distance Haul of One Ton, Miles	266.55	213.61
Total Freight Revenue	\$11,934,791.52	\$8,726,607.52
Average Amount Received for Each Ton of Freight.....	\$1.92473	\$1.74087
Average Receipts per Ton per Mile..	\$0.00722	\$0.00815
Freight Revenue per Mile of Road..	\$4,354.76	\$3,307.34
Freight Revenue per Train Mile.....	\$2.85583	\$2.67504

TOTAL TRAFFIC.

Operating Revenues	\$16,770,699.79	\$12,819,187.57
Operating Revenues per Mile of Road	\$6,119.28	\$4,858.41
Operating Revenues per Train Mile.	\$2.29596	\$2.03851
Operating Expenses	\$9,342,443.87	\$8,163,164.58
Operating Expenses per Mile of Road	\$3,408.86	\$3,093.80
Operating Expenses per Train Mile..	\$1.27901	\$1.29811
Net Operating Revenue	\$7,428,255.92	\$4,656,022.99
Net Operating Revenue per Mile of Road	\$2,710.42	\$1,764.61

CLASSIFICATION.

LOCOMOTIVE MILEAGE, REVENUE SERVICE:	1912	1911.
Freight Locomotive-Miles	3,860,020	2,978,775
Passenger Locomotive-Miles	3,126,532	3,047,244
Mixed Locomotive-Miles	368,274	373,423
Special Locomotive-Miles	3,796	20,803
Switching Locomotive-Miles	981,946	897,491

Total Revenue Locomotive Mileage..... 8,340,568 7,317,736

Non-revenue Service Locomotive-Miles

368,039 308,127

CAR MILEAGE, REVENUE SERVICE:

FREIGHT CAR-MILES:		
Loaded	90,928,929	70,008,812
Empty	28,601,135	25,954,478
Caboose	3,837,821	2,940,013

Total Freight Car-Miles

123,367,885 98,903,303

PASSENGER CAR-MILES:		
Passenger	7,219,917	6,876,994
Sleeping, Parlor and Observation.....	5,126,561	4,746,041
Other Passenger Train Cars.....	5,825,287	5,634,654

Total Passenger Car-Miles..... 18,171,765 17,257,689

SPECIAL CAR-MILES:

Freight, Loaded	11,041	9,016
Freight, Empty	0	0
Caboose	630	409
Passenger	0	1,824
Sleeping, Parlor and Observation.....	0	2,640
Other Passenger Train Cars.....	0	4,464

Total Special Car-Miles..... 11,671 18,353

Total Revenue Car Mileage..... 141,551,321 116,179,345

Non-revenue Service Car-Miles..... 4,962,894 2,575,367

TRAIN MILEAGE, REVENUE SERVICE:

Freight Train-Miles	3,814,546	2,903,495
Passenger Train-Miles	3,124,183	3,011,257
Mixed Train-Miles	364,560	358,740
Special Train-Miles	1,135	15,014

Total Revenue Train Mileage..... 7,304,424 6,288,506

Non-revenue Service Train-Miles

145,526 93,135

Average Number of Passengers per Car-Mile.....	14.	13.
Average Number of Passengers per Train-Mile...	48.	46.
Average Number of Passenger Cars per Train-Mile	5.21	5.12
Average Number of Tons of Freight per Loaded Car-Mile	18.18	15.30
Average Number of Tons of Freight per Train-Mile	395.50	328.24
Average Number of Freight Cars per Train-Mile.	29.52	30.32
Average Number of Loaded Cars per Train-Mile.	21.76	21.46
Average Number of Empty Cars per Train-Mile.	6.84	7.96
Average Mileage Operated During Year.....	2,740.63	2,638.56